ATP
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ATP Grid Index to Manufacturer's Publications:

Raytheon Aircraft Co.
Hawker 800 and BAE 125 Series 800A & 800B with TFE-731-5R-1H
Power Plant Build Manual

Section	Topic

General Information

Title Page
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Letter of Transmittal (Highlights of Changes)

Power Plant

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Section	Topic

*** End of Index ***

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MFG.

INTRO

Raytheon Aircraft

Hawker 800
and
BAe 125 Series 800A & 800B
with
TFE 731-5R-1H Engines

Power Plant Build Manual

Volume 1 of 1
Chapter 71

CAUTION: Do not remove pages from this book unless instructed to do so, by an Authorized Letter of Transmittal.

NOTE: This manual is applicable to the Hawker 800, BAe 125-800A and BAe 125-800B Airplanes. These different identities have no effect on the content of this manual.

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Issued: May 1989

Rev: 3
Dated: March 2003

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ECCN: 9E991
NLR

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Manufacturers Association

RECORD OF REVISIONS

MFG REV NO	DESCRIPTION	ISSUE DATE	ATP REV DATE	INSERTED BY
0	New Issue	5/89	11/16/95	ATP/RMD
1	See Highlights	3/95	"	ATP/JLD
2	See Highlights	8/00	2/15/01	ATP/MB
3	See Highlights	3/03	5/8/03	ATP/MT

RECORD OF REVISIONS (NORMAL)

Revisions embodied in this manual, which have been issued by an approval authorization other than Raytheon Aircraft Company, must be recorded on separate record sheets.

Revision No.	Revision Date	Insertion Date	Inserted By
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RECORD OF REVISIONS (NORMAL)

The introduction of any revision not certified in accordance with British Civil Airworthiness Requirements, Section A, Chapter A5-3, will invalidate the statement of approval on the title page.

Revisions embodied in this manual, which have been certified under an approval authorisation other than that applicable to the initial approval, must be recorded on separate record sheets.

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"DO NOT USE THIS SHEET FOR RECORDING THE INCORPORATION OF ANY FUTURE REVISIONS, USE THE NEW SHEET ISSUED BY RAYTHEON AIRCRAFT COMPANY"

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RECORD OF TEMPORARY REVISIONS

TEMP REV NO	DESCRIPTION	ISSUE DATE	ATP REV DATE	INSERTED BY	DATE REMOVED	REV INCORP	REMOVED BY

RECORD OF TEMPORARY REVISIONS

Temporary revisions embodied in this manual, which have been issued by an approval authorization other than Raytheon Aircraft Company, must be recorded on separate record sheets.

LOT No.	TR No.	Affecting		Inserted		Removed	
		Part	Page	Inserted by	Date	Cancelled by	Date

LOT No.	TR No.	Affecting		Inserted		Removed	
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RECORD OF REVISION (TEMPORARY)

Complete this record upon the entry of all Temporary Revisions issued by Raytheon Corporate Jets, Inc.

The introduction of data by temporary revisions that are not certified in accordance with British Civil Airworthiness Requirements, Chapter A5-3, will invalidate the statement of approval on the title page of this manual. Temporary revisions embodied in this manual which have been certified by an approved Design Organization other than that applicable to the initial certification must be recorded on separate record sheets.

Letter of Transmittal No.	Temporary Revision No.	Affecting	Cancelled by

DO NOT USE THIS SHEET FOR RECORDING THE INCORPORATION OF ANY FUTURE TEMPORARY REVISIONS

USE THE SHEET ISSUED BY RAYTHEON AIRCRAFT COMPANY

Letter of Transmittal No.	Temporary Revision No.	Affecting	Cancelled by

Raytheon Aircraft Company
P.O. Box 85,
Wichita
Kansas 67201
U.S.A

Hawker 800
BAe 125 Series 800A & 800B
with
TFE 731-5R-1H Engines
P/N: PBM 125-800

LETTER OF TRANSMITTAL - REVISION 3

1. HOLDERS OF PRINTED MANUALS

(1) Make sure that Revision 2 has been incorporated.

(2) Remove and destroy temporary revisions detailed for removal in paragraph 4. of this letter of transmittal and cancel any entries for these temporary revisions on the RECORD OF TEMPORARY REVISIONS sheet at the front of the Manual.

(3) Insert any new or revised pages in numerical sequence, removing and destroying the existing pages replaced by the revised pages as instructed in paragraph 3. of this letter of transmittal.

(4) Record the incorporation of this revision on the RECORD OF REVISIONS (NORMAL) sheet at the front of the manual.

(5) Keep this letter of transmittal and file at the front of the manual.

2. HIGHLIGHTS

Ch-Se-Su	Description of change
Title page	Revised. Transfer of Type Certificate statement deleted and Export statement reworded.
71-LOEP	Revised.
71-00-09	MAINTENANCE PRACTICES - Topic data deleted. Reference to AMM STANDARD PRACTICES - AIRFRAME, P/N 125/H-20 for ELECTRICAL BONDING added.
71-10-03	INSTALLATION - Parts tables revised to add all item numbers shown on figures, reference only added where applicable. Metric equivalents added and manual references revised.
71-20-03	INSTALLATION - Parts tables revised to add all item numbers shown on figures, reference only added where applicable. Metric equivalents added and manual references revised.

3. INSTRUCTIONS FOR INCORPORATING THIS REVISION

Ch-Se-Su	Remove Page(s)	Insert Page(s)	Remove TR
Title page	1/2	1/2	-
71-LOEP	1 thru 3	1 thru 3	-
71-00-09	201 thru 224	201	-
71-10-03	401 thru 430	401 thru 430	-
71-20-03	401 thru 437	401 thru 437	-

4. TEMPORARY REVISION DATA

No special instructions.

Raytheon Aircraft Company
P.O. Box 85,
Wichita
Kansas 67201
U.S.A

Hawker 800 Power Plant Build Manual
P/N: PBM 125-800

LETTER OF TRANSMITTAL - REVISION 2

Revision 2 of the Power Plant Build Manual is a complete re-issue. All pages have been revised to include the Raytheon Aircraft Company page header and a new Title page is introduced.

Editorial changes to Chapter 71-00-00 General - Description, Chapter 71-00-06 Consumable Materials and Chapter 71-00-09 Electrical Bonding - Maintenance Practices, are indicated by a revision line in the left hand margin. No technical changes have been incorporated by this revision.

1. HOLDERS OF PRINTED MANUALS

(1) Make sure Revision 1 has been incorporated.

(2) Remove and destroy the pages detailed for removal, as instructed in paragraph 4 of this letter of transmittal.

NOTE: Retain the existing Record of Revisions (NORMAL) and Record of Revisions (TEMPORARY) in the manual for a historical record. Refer to Paragraph 2. Special Instructions.

(3) Insert the revised pages in numerical sequence, as instructed in paragraph 4 of this letter of transmittal.

(4) Record the incorporation of this Revision on the new RECORD OF REVISIONS (NORMAL) sheet at the front of the manual.

(5) Retain this Letter of Transmittal and file at the front of the manual.

2. SPECIAL INSTRUCTIONS

(1) On the existing Record of Revisions (NORMAL) sheet page 1 (retained at paragraph 1.(2)), draw a diagonal line from below Revision No.1 to the bottom of the page and on page 2 draw a diagonal line from the top to the bottom. On the two pages write in bold lettering "DO NOT USE THIS SHEET FOR RECORDING THE INCORPORATION OF ANY FUTURE REVISIONS, USE THE NEW SHEET ISSUED BY RAYTHEON AIRCRAFT COMPANY".

(2) On the existing Record of Revisions (TEMPORARY) sheet page 1 (retained at Paragraph 1.(2)), draw a diagonal line from the LOT No. to the bottom of the page and on page 2 draw a diagonal line from the top to the bottom. On the two pages write in bold lettering "DO NOT USE THIS SHEET FOR RECORDING THE INCORPORATION OF ANY FUTURE TEMPORARY REVISIONS, USE THE NEW SHEET ISSUED BY RAYTHEON AIRCRAFT COMPANY".

3. HIGHLIGHTS

Ch-Se-Su	Description of change
Title page.	Reformatted Title page. Transfer of Type Certificate, Export Statement and Company logo's added.
Change of address/registration card.	Revised to reflect P/N: PBM 125-800.
Record of Revisions (NORMAL).	New record of revisions introduced.
Record of Revisions (TEMPORARY).	New record of revisions introduced.
Chapter 71	
71-LOEP	Reformatted and re-issued.
71-00-00	Paragraph 4. Editorial, text reworded. Paragraph 5. Editorial, revised to include reference to Raytheon Aircraft Company and new Company address.
71-00-06	Paragraph 1. Editorial, AMM Chapter 20 reference revised.
71-00-09	Electrical Bonding - Maintenance Practices. Editorial, page 201 revised to delete reference to BAEP 5016.
71-00-00 through 71-30-06 inclusive.	Page headers revised to read Raytheon Aircraft Company. No technical changes.

4. INSTRUCTIONS FOR INCORPORATING THIS REVISION

Ch-Se-Su	Remove Page(s)	Insert Page(s)	Remove TR
Title page	Rev.1 Mar.95	Rev.2 Aug.00	-

Ch-Se-Su	Remove Page(s)	Insert Page(s)	Remove TR
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Record of Revisions (TEMPORARY)	-	1/2	-
Chapter 71			
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71- Table of Contents	1/2	1/2	-
71-00-00 thru 71-30-06 inc.	All	All	-

NOTE: Insert Chapters 71-00-00 thru 71-30-06 in numerical order and sequence as detailed on the Table of Contents.

5. TEMPORARY REVISION DATA

No special instructions.

Raytheon Corporate Jets, Inc.
3 Bishop Square,
St. Albans Road West,
Hatfield, Hertfordshire,
AL10 9NE, England.

This permanent revision/amendment complies with British Civil Airworthiness Requirements, Section A, Chapter A5-3.

Signed..Date.........16/3/95...................................

CAA Approval No: DAI/2652/55

Hawker 800 Power Plant Build Manual
Ref. PBM 125-800

LETTER OF TRANSMITTAL - REVISION No.1

Revision No.1 of the Power Plant Build Manual has been produced as part of the Raytheon Corporate Jets Inc. manual improvement programme on a new publishing system.

This results in a different appearance and may have the effect of reducing the number of pages.

Technical changes will be indicated by a revision bar in the left margin as usual.

INSTRUCTIONS FOR INCORPORATING THIS REVISION

1. HOLDERS OF PRINTED MANUALS

(1) Remove and discard ALL the following sections of the existing manual:

- Spine card.
- Title page.
- Record of Revisions (Normal) sheet.
- Record of Revisions (Temporary) sheet.
- List of Effective Pages.
- Table of Contents.
- Introduction.
- Chapters 71-00-00 through to 71-30-06.

(2) Retain the existing manual binder.

(3) Insert new:
- Spine card.
- Title page.
- Record of Revisions (Normal) sheet.
- Record of Revisions (Temporary) sheet.
- List of Effective Pages.
- Table of Contents.

(4) Insert the new pages in numerical order and in the sequence detailed in the Table of Contents.

(5) Record the incorporation of this revision on the Record of Revisions (Normal) sheet at the front of the manual.

(6) Retain this Letter of Transmittal and file at the front of the manual.

2. SPECIAL INSTRUCTIONS

(1) No special instructions.

3. HOLDERS OF MICROFICHE

(1) No special instructions for holders of microfiche.

4. HIGHLIGHTS

71-00-06	Presentation of consumable materials changed to suit Aircraft Maintenance Manual arrangement.
71-00-09	Electrical bonding procedures updated to conform to current design specification.
71-10-03	Cross reference added.
71-10-00 through 71-30-06	Component part numbers removed (Reference should be made to the Illustrated Parts Catalogue).
71-30-03	Installation of hydraulic pump hoses added.
71-30-06	Removal of hydraulic pump hoses added.

CHAPTER

71

POWERPLANT

POWER PLANT BUILD MANUAL

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GENERAL - DESCRIPTION

1. Purpose of manual

The purpose of the Power Plant Build Manual is to provide detailed build up procedures to assemble a basic spare engine into first, a common engine standard and then, into the standard required for installation on the aircraft. It also gives the procedures to take an engine from the standard required for installation on the aircraft back to the common engine standard and then, back to the basic spare engine.

2. Format of the manual

The manual is, in general, formatted in accordance with Air Transport Association of America (ATA) Specification No.100.

3. Arrangement of the manual

The Manual is sub-divided into four main sections:

- Introduction/General
- Common engine standard
- Left hand engine standard
- Right hand engine standard

4. Revisions

Two types of revision will be issued: Normal and Temporary.

Normal revisions will be printed on white paper. Each revision will be accompanied by a Letter of Transmittal. These revisions will be recorded on the record of normal revisions sheet at the front of the manual.

Temporary revisions, printed on yellow paper, will be issued to notify operators rapidly of important changes or provide advance information. These revisions will be recorded on the record of temporary revisions sheet at the front of the manual.

New or revised technical matter will be indicated by a vertical line in the left hand margin of the page.

5. Action to be taken upon receipt or transfer of this manual

(1) If the manual has been received direct from Raytheon Aircraft Company, complete the Registration Card at the front of the manual and post it.

(2) If the manual has been transferred to you:

  (a) Enter on the Change of Address Card the name and address to which future revisions should be sent.

(b) Add to the card the current revision state of the manual. This information is required so that any outstanding revisions can be sent to you without delay.

(c) Post the card.

(3) If there is no Registration Card or Change of Address Card, write a letter stating:

(a) The full title of the manual, the manual Part No. PBM 125-800 and the TMDC number. If the TMDC number is not known, please state that it is not known.

(b) The current revision state of the manual.

(c) The name and address to which revisions should be sent.

(d) Post the letter to:

Raytheon Aircraft Company,
Technical Publications Department 990,
9709 E. Central,
P.O. Box 85,
Wichita, KS 67201-0085.
For the attention of the TMDC administrator.

6. General

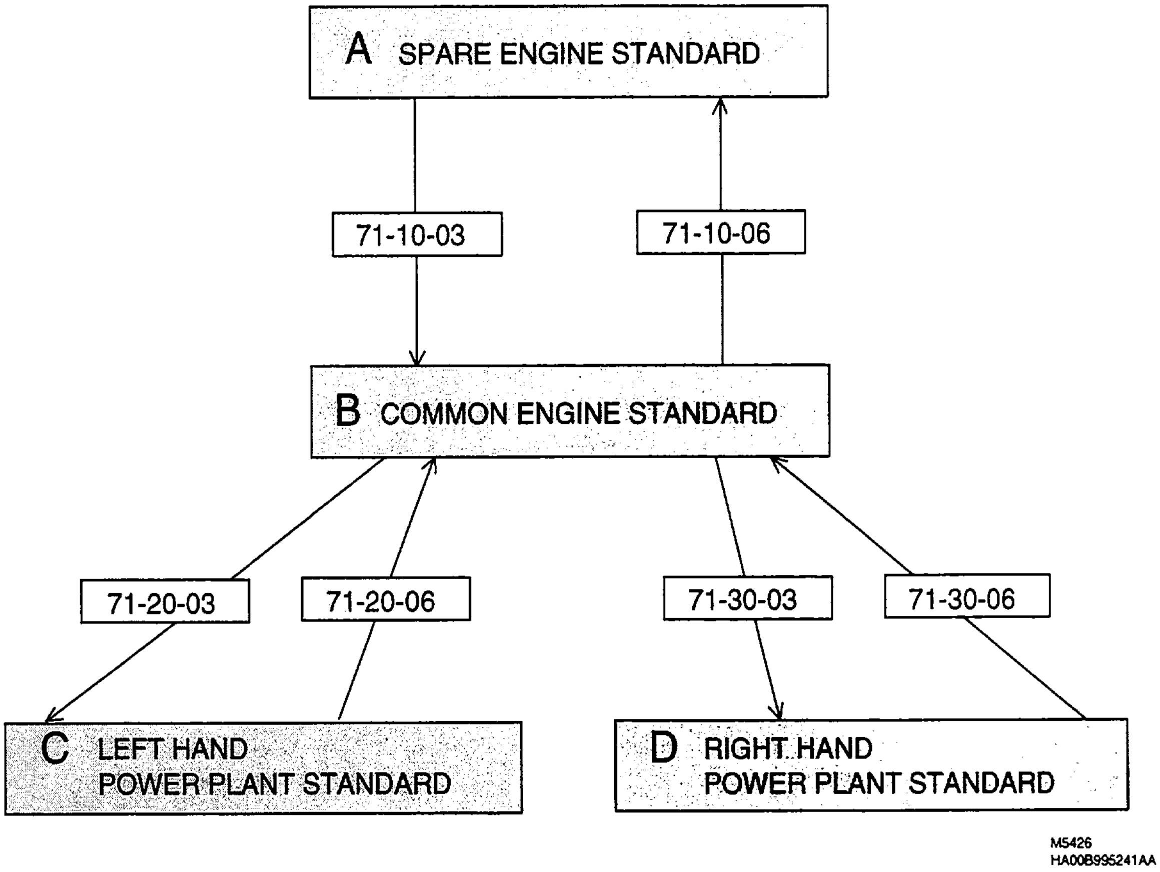
Figure 1 illustrates the section references within the manual that detail the sequence and procedures required to convert an engine/power plant to:

A. 'Spare' engine standard

B. Common engine standard

C. Left hand power plant standard

D. Right hand power plant standard



Power plant build standards

Figure 1

TORQUE LOADINGS - DESCRIPTION

1. General

All torque loading figures quoted are the actual loadings required.

If an extension spanner is used between the torque spanner and the item being tightened, calculate the correct torque spanner dial reading required using the following formula:

$$R = \frac{T \times L}{L + E}$$

Where R = indicated value on torque spanner

T = torque value required

L = length of torque spanner

E = length of extension spanner

2. Non-mandatory torque loadings

For nuts and/or bolts, which are not detailed as being subject to a mandatory torque loading, the following values *(Table 1)* are given for guidance:

Non-mandatory torque loadings

Table 1

Thread size	Torque loading	
	(lbf.in.)	(Nm)
2 BA	35	4.0
1⁄4 in.	90	10.2
5⁄16 in.	180	20.3
3⁄8 in.	315	35.6
7⁄16 in.	500	56.5
1⁄2 in.	700	79.1
5⁄8 in.	1300	146.9

3. Flared tubing fittings and flexible pipe fittings

Unless otherwise stated in the text, flared tubing fittings (when not used with conical seals) and flexible pipe fittings shall be tightened to torque values specified in *Table 2.*

Standard torque values for flared tubing fittings (Conical seals not used) and flexible pipe fittings
Table 2

Tube Dash No	Torque, Aluminium Parts		Torque, All Steel Parts	
	(lbf. in.)	(Nm)	(lbf. in.)	(Nm)
2	12 -15	1.4 -1.7	35 - 40	4.0 - 4.5
3	20 - 35	2.3 - 4.0	70 - 80	7.9 - 9.0
4	40 - 60	4.5 - 6.8	100 - 120	11.3 - 13.6
5	65 - 85	7.3 - 9.6	140 - 160	15.8 - 18.1
6	100 - 120	11.3 - 13.6	190 - 220	21.5 - 24.9
7	140 - 160	15.8 - 18.1	240 - 280	27.1 - 31.6
8	180 - 220	20.3 - 24.7	300 -350	33.9 -39.6
10	270 - 330	30.5 - 37.3	440 - 500	49.7 - 56.5
12	360 - 440	40.7 - 48.7	600 - 660	67.8 - 74.6
16	500 - 620	49.7 - 70.1	840 - 960	94.9 -108.5
20	660 - 780	74.6 - 88.1	1080 - 1320	122.0 - 149.2
24	880 - 960	99.4 - 108.5	1500 - 1800	169.5 - 203.4
28	960 - 1140	108.5 - 128.8	2160 - 2520	244.1 - 284.8
32	1080 - 1320	122.0 - 149.2	2400 - 2880	271.2 - 325.4

CONSUMABLE MATERIALS

1. Description

Throughout this manual, consumable materials are listed by Item No's for the maintenance, servicing and repair of both the left and right hand engines.

Refer to the Aircraft Maintenance Manual (AMM) Chapter 20 STANDARD PRACTICES - AIRFRAME, Ref. 125/H-20 for a complete list of all Item No's referred to in the build/strip procedures and for the list of approved suppliers.

ELECTRICAL BONDING - MAINTENANCE PRACTICES

1. General

Throughout this manual, electrical bonding is referred to.

Refer to the Aircraft Maintenance Manual (AMM) Chapter 20 STANDARD PRACTICES - AIRFRAME, Manual P/N 125/H-20, ELECTRICAL BONDING, for details of procedures.

ENGINE SHIPPING CONTAINER, MAINTENANCE STAND AND PRESERVATION

REMOVAL/INSTALLATION

1. Procedures

A. Equipment/Materials

Equipment/Material	Part/Item No.
(1) Engine shipping container *(Figure 401)*	PST101-1
(2) Engine shipping and storage container *(Figure 402)*	PST113-1
(3) Engine hoisting sling	289769-1
(4) Engine maintenance stand	289762-1
(5) Maintenance stand adapter kit	289764-1
(6) Maintenance stand adapter kit	289765-1

B. Transfer from shipping container/shipping storage container to maintenance stand

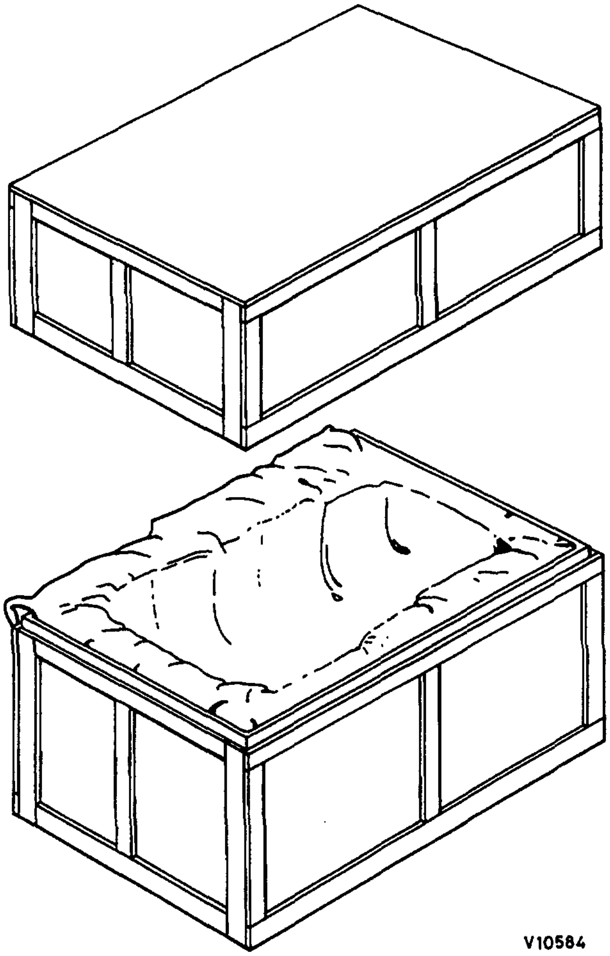
WARNING: DO NOT STAND BELOW ENGINE WHILE SUPPORTED BY HOIST AND SLING. A FAILURE OF HOIST OR SLING COULD CAUSE INJURY TO PERSONNEL.

CAUTION: AVOID EXCESSIVE BENDING AND SHARP BENDS WHEN HANDLING ITT THERMOCOUPLE HARNESS AND N_1 TRANSDUCER LEADS. RADIUS OF LEAD BENDS SHALL NOT BE LESS THAN 0.5 INCH.

NOTE: Do a check of the container for auxiliary equipment which may be packed with the engine before removal of the engine from the container. Be careful to avoid damage to these items if engine removal is required before removal of any of the packed items.

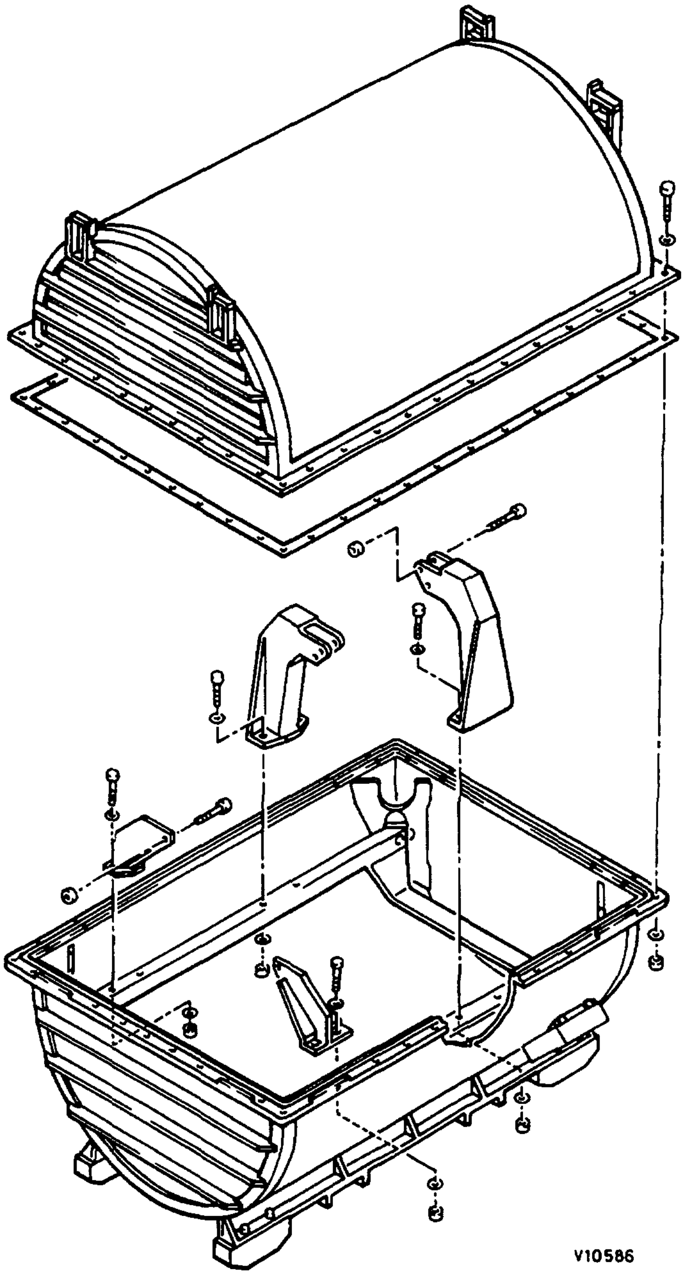
(1) Transfer from shipping container to maintenance stand as follows *(Figure 401)*:

- (a) Remove four shipping bands securing cover of shipping container (1), then remove top flexible foam form.
- (b) Remove auxiliary equipment from indentures in bottom foam form next to engine.
- (c) Install maintenance stand kits (5), (6) on engine.
- (d) Install engine sling (3) on engine support housing and rear mount and secure. Attach a hoist of 1000 lb (455 kg) minimum capacity to sling and lift the engine from bottom flexible foam form. Make sure there is sufficient clearance for ITT and N_1 transducer harness leads to prevent lead damage.
- (e) Lower engine onto maintenance stand (4) and secure.



Engine shipping container

Figure 401



Engine shipping storage container

Figure 402

(f) Disconnect hoist from sling and remove sling from engine support housing and rear mount.

(g) Remove four screws and washers securing wooden block installed over shaft on aft end of fuel control and remove wooden block.

(h) Inspect aft shaft on fuel control to make sure shaft was not bent during handling of engine.

(2) Transfer from shipping storage container to maintenance stand as follows *(Figure 402)*:

(a) Relieve pressure in container (2), if any, using relief valve.

(b) Remove nuts, bolts and washers securing container halves, then remove top container half.

(c) Install sling (3) on engine support housing and rear mount and secure. Attach hoist of 1000 lb (455 kg) minimum capacity to sling.

(d) Remove nuts, bolts and washers securing container mounting brackets to bottom container half.

(e) Lift engine (with attached container mounting brackets) from bottom container half. Make sure there is sufficient clearance for ITT and N_1 transducer harness leads to prevent lead damage.

(f) Disconnect and remove container mounting brackets from engine.

(g) Install maintenance stand adaptor kits (5), (6) on engine.

(h) Lower engine onto engine maintenance stand (4) and secure.

(i) Disconnect hoist from sling (3) and remove sling (3) from engine support housing and rear mount.

(j) Remove four screws and washers securing wooden block installed over shaft on aft end of fuel control and remove wooden block.

(k) Inspect aft shaft on fuel control to make sure shaft was not bent during handling of the engine.

(3) Make sure depreservation procedures are done before operation of the engine.

C. Transfer from maintenance stand to shipping container/shipping storage container

(1) Before installation in either a shipping container or a shipping storage container do the following engine preservation procedures:

(a) Remove drain plug from oil tank. Let the oil drain into a suitable container, then refit drain plug with new packing.

(b) Remove drain plug from accessory drive gearbox. Let the oil drain into a suitable container, then refit drain plug with new packing.

(c) Check oil drained in paragraphs (a) and (b) for contamination which could indicate internal damage to engine.

NOTE: *Use of corrosion preventative compound in the engine lubrication system for preservation is not required. Specified engine lubricating oil is a satisfactory corrosion preventative.*

(d) Wipe all fuel and oil from engine. secure a **WARNING** tag to the engine, indicating the preservation procedure has been performed. Record preservation procedure in Engine Log Book.

(2) Transfer from maintenance stand to shipping container as follows *(Figure 401)*:

NOTE: *Engines must be shipped as complete units. All accessories, brackets, aircraft harness, quick engine change parts etc., not originally installed on the engine should be removed before packing and shipping.*

NOTE: *When the engine is returned to the manufacturer it should include the following parts:*

- *Fuel pump*
- *Fuel control*
- *Accessory gearbox*
- *Transfer gearbox*
- *Flow divider valve*
- *Ignition unit*
- *Inlet pressure and temperature sensor*
- *Surge bleed valve*
- *Solenoid controller*
- *Oil tank*
- *Breather pressurization valve*
- *Oil lube and scavenge pump*
- *Fuel oil cooler*
- *Fuel heater*
- *Air oil coolers*
- *Fuel nozzles*
- *Thermocouple lead assembly*
- *Ignition plugs and leads*
- *Engine wiring harness*
- *Chip detector*
- *Plenum drain valves*
- *Fan inlet housing*
- N_1 *and* N_2 *monopole pickup transducer,*
- *Fuel filter*
- *Oil filter*

(a) Install sling (3) on engine support housing and rear mount and secure.

(b) Attach a hoist of 1000 lb (455 kg) minimum capacity to sling (3). Disconnect and lift engine from engine maintenance stand (4).

(c) Remove maintenance stand adaptor kits (5), (6) from engine.

(d) Install shipping covers over fan and exhaust openings. Install wooden block over shaft on aft end of fuel control and secure with four screws and washers.

(e) Lower engine in bottom flexible foam form in shipping container (1). Make sure there is enough clearance for ITT thermocouple harness and N_1 transducer leads to prevent lead damage. Remove the sling (3).

(f) Store auxiliary equipment in indentures provided in bottom flexible foam form next to engine.

(g) Install upper flexible foam form and cover of shipping container (1).

(h) Secure shipping container cover with four shipping bands.

(3) Transfer from maintenance stand to shipping storage container as follows *(Figure 402)*:

NOTE: Engines must be shipped as complete units. All accessories, brackets, aircraft harness, quick engine change parts etc., not originally installed on the engine should be removed before packing and shipping.

NOTE: When the engine is returned to the manufacturer it should include the following parts:

- *Fuel pump*
- *Fuel control*
- *Accessory gearbox*
- *Transfer gearbox*
- *Flow divider valve*
- *Ignition unit*
- *Inlet pressure and temperature sensor*
- *Surge bleed valve*
- *Solenoid controller*
- *Oil tank*
- *Breather pressurization valve*
- *Oil lube and scavenge pump*
- *Fuel oil cooler*
- *Fuel heater*
- *Air oil coolers*
- *Fuel nozzles*
- *Thermocouple lead assembly*
- *Ignition plugs and leads*
- *Engine wiring harness*
- *Chip detector*
- *Plenum drain valves*
- *Fan inlet housing*
- *N_1 and N_2 monopole pickup transducer,*
- *Fuel filter*
- *Oil filter*

(a) Install sling (3) on engine support housing and rear mount and secure.

(b) Attach a hoist of 1000 lb (455 kg) minimum capacity to sling (3). Disconnect and lift engine from engine maintenance stand (4).

(c) Remove maintenance stand adaptor kits (5), (6) from engine.

(d) Install container mounting brackets on bottom container (2) half and secure with nuts, bolts and washers.

(e) Install shipping covers over fan and exhaust openings. Install wooden block over shaft on aft end of fuel control and secure with four screws and washers.

(f) Lower engine into bottom container half (2). Make sure there is enough clearance for ITT thermocouple harness and N_1 transducer leads to prevent lead damage.

(g) Secure support housing and rear mounts to container mounting bracket.

(h) Disconnect hoist from sling (3) and remove sling from engine support housing and rear mount.

(i) Install top container half on bottom container half and secure with nuts, bolts and washers.

NOTE: Evacuation or pressurization of container is not required.

D. Uninstalled engine preservation

Equipment/Material	Supplier	Part/Spec. No.
(1) Barrier bag	Edco Supply Co. 323 36th, Brooklyn, NY 11132	MIL-B-131
(2) Barrier material	Blake Moffet and Town, A Division of Saxon Industries, 202 South 27th Street, Phoenix, AZ 85034	MIL-B-121
(3) Desiccant	Blake Moffet and Town, A Division of Saxon Industries, 202 South 27th Street, Phoenix, AZ 85034	MIL-D-3464
(4) Humidity indicator card	Humidial Sales Co. 465 Mt. Vernon Avenue, Colton, CA 92324	6203-MX-56789
(5) Humidity indicator plug Type II	Blake Moffet and Town, A Division of Saxon Industries, 202 South 27th Street, Phoenix, AZ 85034	MIL-I-26860 or HUM 2156

Equipment/Material	Supplier	Part/Spec. No.
(6) Oil preservative	Exxon Co. USA, PO Box 2180 800 Bell Avenue, Houston, TX 77001	Univolt 60
(7) Oil (alternative to Univolt 60)	Commercially available from any reputable supplier	MIL-L-6081, Grade 1010
(8) Sealer	Doboy Packaging Machinery, A Division of Nordson Corporation, 869 S Knowles Avenue, New Richmond, WI 54017	Metric Model HS-B

(1) If an uninstalled engine is to be stored for a long period of time (30 days or more), do the following preservation procedures:

- (a) Remove drain plug from oil tank. Let the oil drain into a suitable container, then reinstall the drain plug with a new packing.
- (b) Install inlet and tailplane plugs.
- (c) Wrap engine in barrier material (2) and seal all openings to prevent entrance of foreign material.
- (d) Install engine into barrier bag (1) with four bags of desiccant (3) and two humidity indicator cards (4). Install humidity plug (5) into barrier bag (1). Seal barrier bag seam with sealer (8).
- (e) Cut opening into barrier bag (1) and insert vacuum line. Evacuate air from barrier bag (1) until the barrier bag (1) is drawn snugly into engine. Remove vacuum line and seal opening in barrier bag using heat gun.
- (f) Record preservation in Engine Log Book.
- (g) Check humidity indicator plug (5) and humidity indicator cards (4) every 30 days. If indicator plug (5) or cards (4) change from blue to pink, barrier bag (1) must be opened and engine inspected for corrosion. If corrosion is evident, take appropriate corrective action.

  Preserve engine in accordance with paragraphs (c) to (g) after inspection is completed.
- (h) Engines preserved as stated in paragraphs (c) to (g) must be removed from storage every two years, served with oil and motored sufficiently to achieve N_1 rotation. Make sure fuel control power is in cut-off position before motoring. Preserve engine in accordance with paragraphs (a) to (g) after motoring.
- (i) Engines received from Allied Signal Engines are preserved before shipment. Preservation is good for two years. Inspection of preserved engines should performed according to paragraphs (g) and (h).

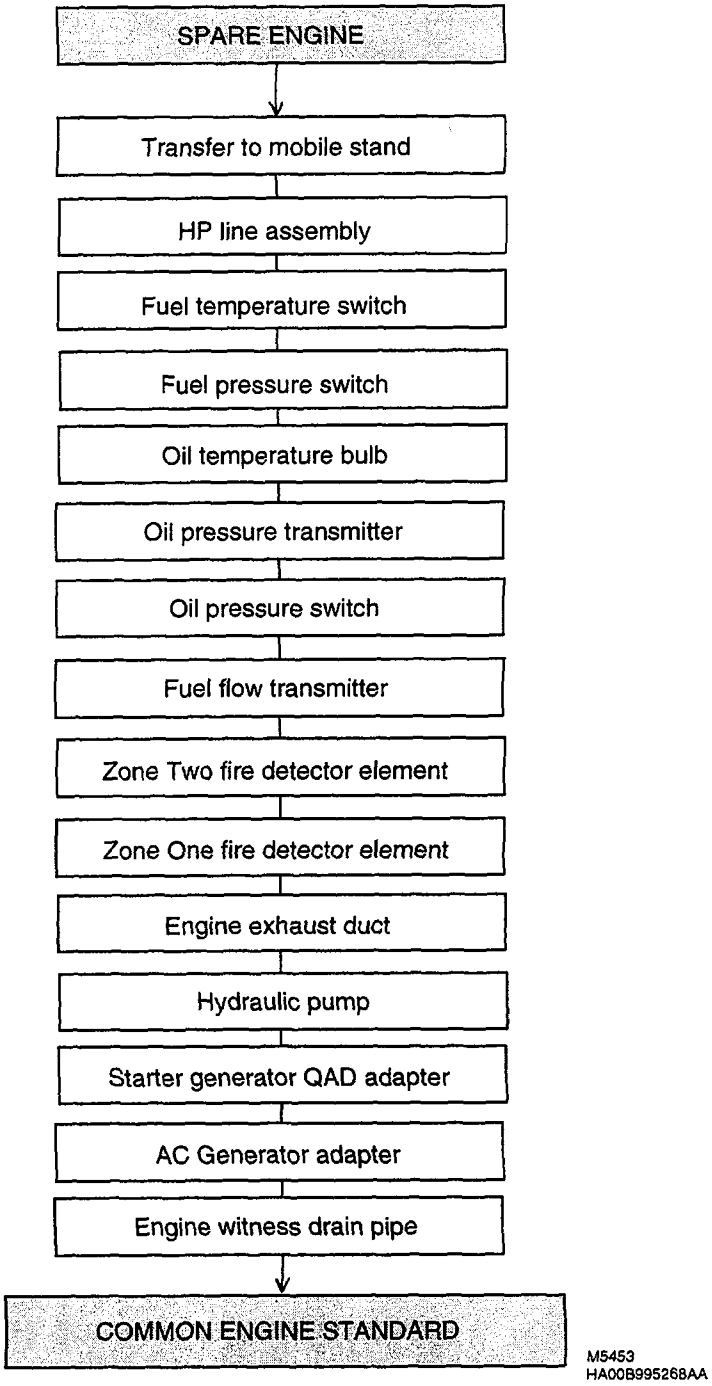
COMMON ENGINE STANDARD

GENERAL DESCRIPTION

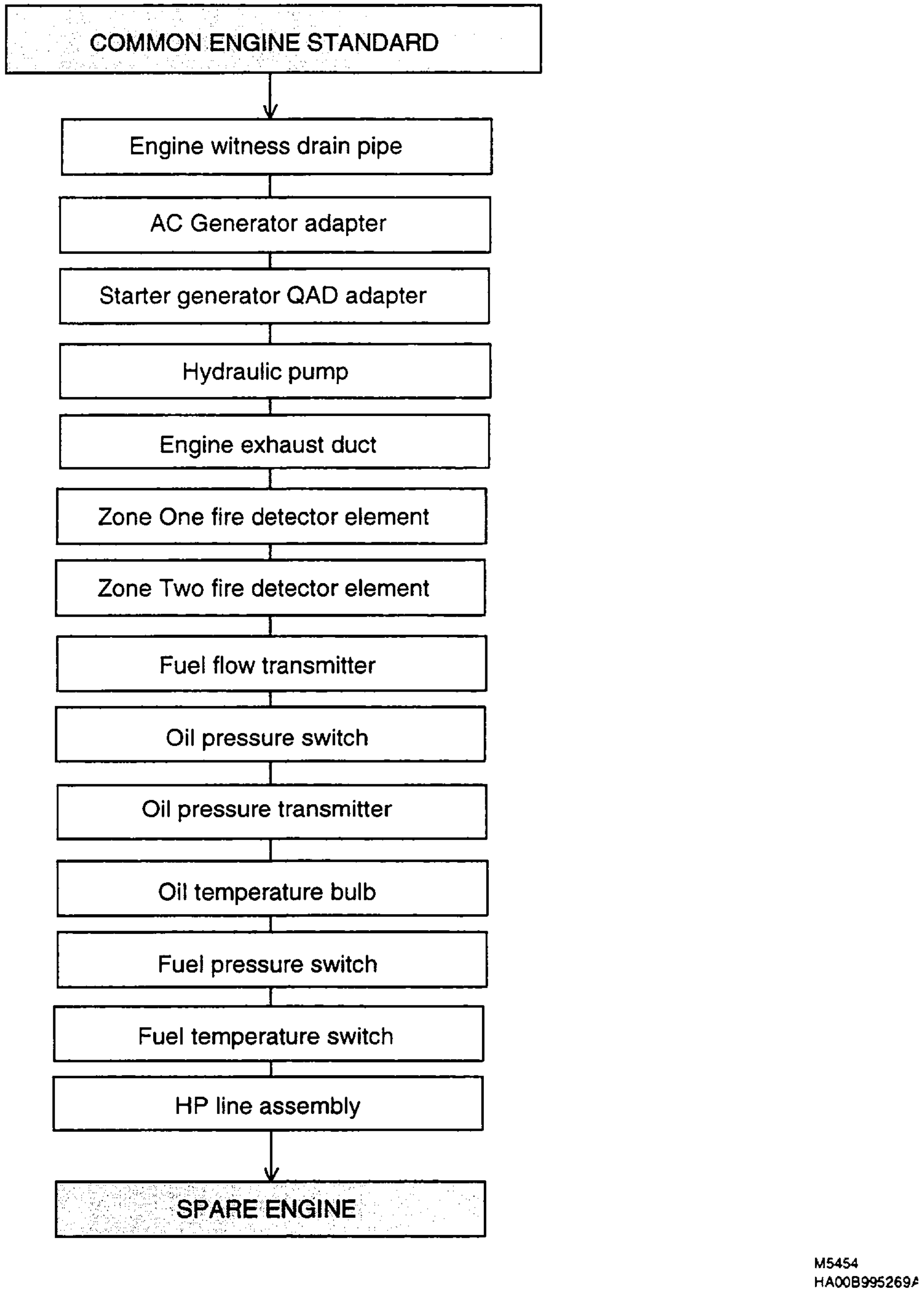
1. General

This section illustrates *(Figure 1)* and then details the procedures for building a 'spare' engine to a standard which is common to both left hand and right hand installations and then illustrates *(Figure 2)* and details disassembly procedures back to 'spare' engine.

During installation of pipes and couplings, observe the torque loading procedures given in 71-00-03 unless otherwise stated in the text.



Spare engine build to common engine standard
Figure 1



Common engine standard disassembly to spare engine condition
Figure 2

COMMON ENGINE STANDARD

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BUILD UP TO COMMON ENGINE STANDARD

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1. Install HP line assembly *(Figure 401)*

NOTE: Refer to the Illustrated Parts Catalogue (IPC) for the part numbers of components listed in these procedures.

A. Parts List

Item No.	Component	Units per assembly
1	Engine casing	Reference only
2	Line assembly	1
3	Bolt	4
4	Washer	4
5	Gasket	1

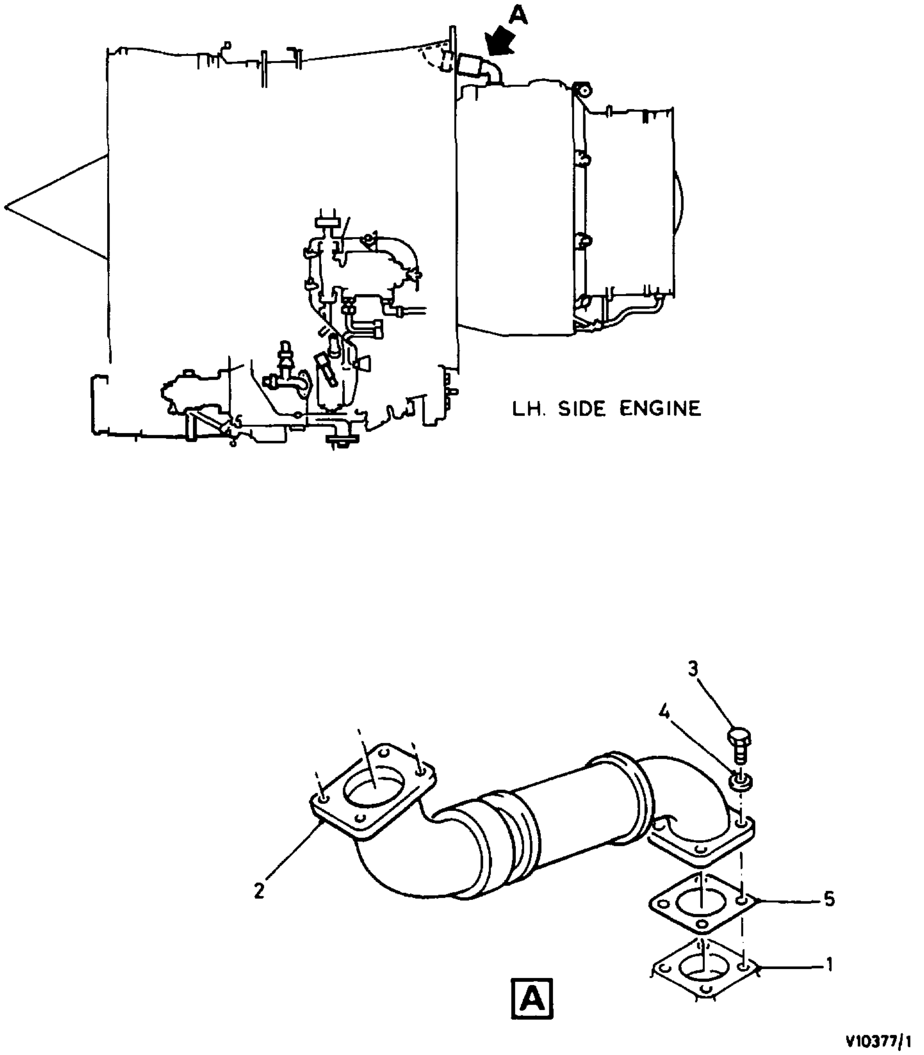
B. Procedure

(1) Remove blank and gasket from high pressure air supply tapping on engine casing (1).

(2) Install new gasket (5) and assemble line assembly (2) with bolts (3) and washers (4) to engine casing (1).

(3) Tighten bolts (3) to a torque of 20 to 25 lbf.in. (2.26 to 2.82 Nm).

NOTE: Leave the line assembly (2) coupling nut and top elbow loose at this stage. Further installation instructions are done in BUILD UP TO LEFT HAND POWER PLANT STANDARD *or* BUILD UP TO RIGHT HAND POWER PLANT STANDARD *as applicable.*



HP line assembly installation
Figure 401

2. Install fuel temperature switch *(Figure 402)*

A. Parts List

Item No.	Component	Units per assembly
1	Fuel filter	Reference only
2	Fuel temperature switch	1
3	‘O’ ring seal	1

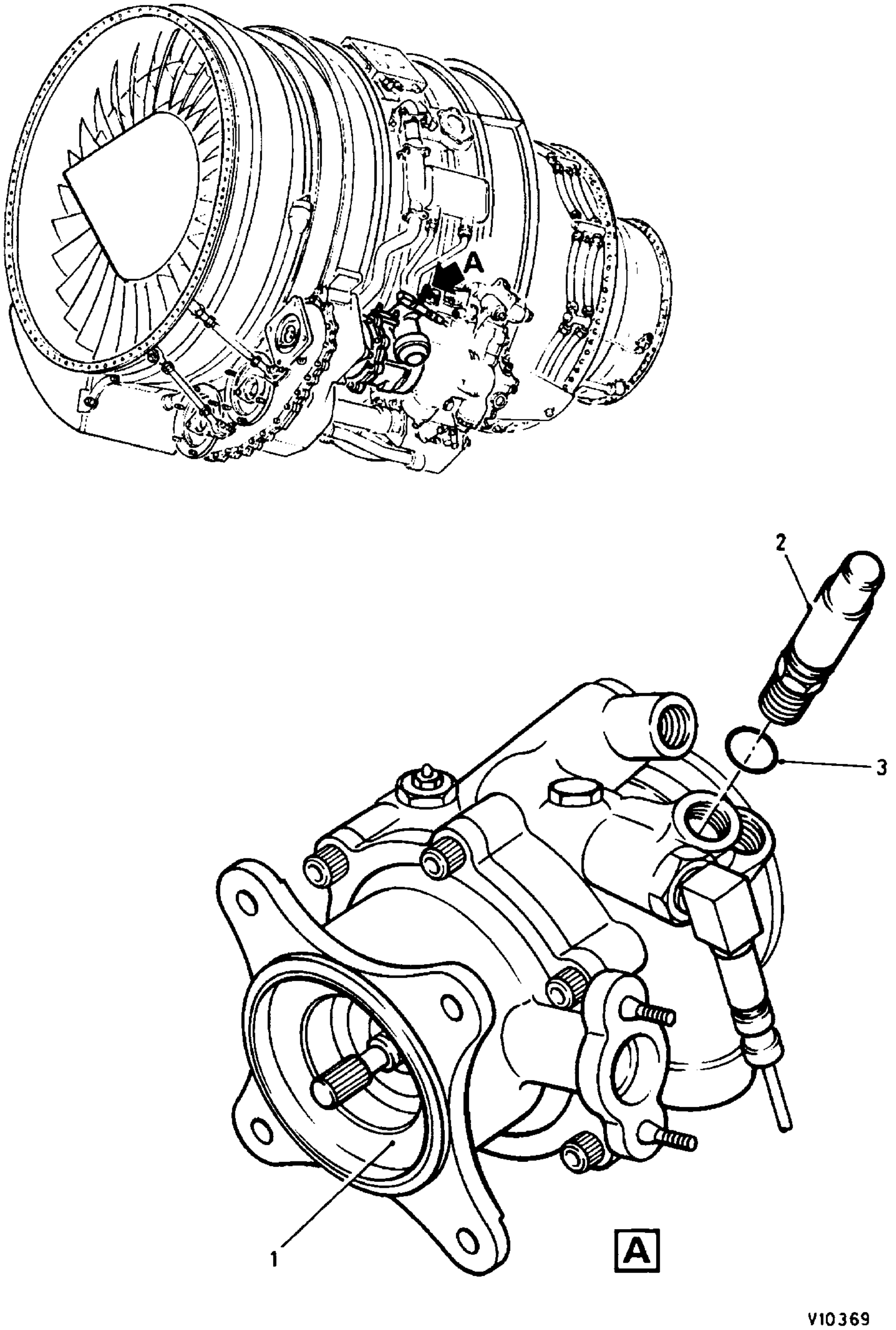
B. Procedure

(1) Remove blanks from fuel temperature switch (2) and aperture on fuel filter (1).

(2) Install new ‘O’ ring seal (3) to the fuel temperature switch (2).

(3) Install fuel temperature switch (2) and safety with lockwire.

(4) Connect electrical connector to fuel temperature switch (2).



Fuel temperature switch installation
Figure 402

3. Install fuel pressure switch *(Figure 403)*

A. Parts List

Item No.	Component	Units per assembly
1	Engine casing	Reference only
2	Tube assembly	1
3	Nut	2
4	Washer	2
5	‘O’ ring	1
6	‘O’ ring	1
7	Fuel pressure switch	1
8	Electrical connector	Reference only

B. Procedure

(1) Remove blanks from aperture on engine casing (1) and tube assembly (2).

(2) Install new ‘O’ ring seal (5) to tube assembly (2).

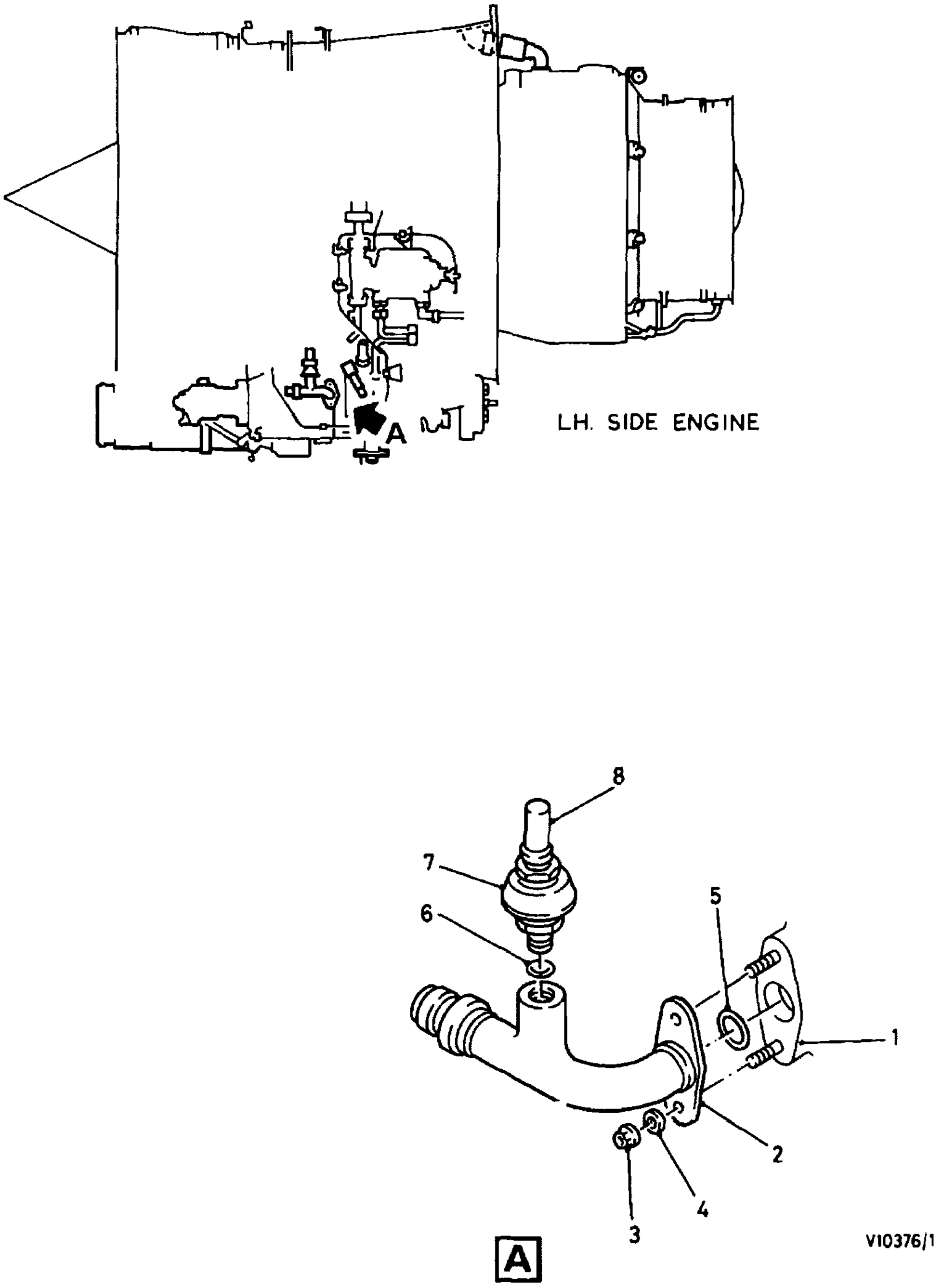
(3) Install tube assembly (2) to engine casing (1).

(4) Attach with nuts (3) and washers (4). Tighten nuts to a torque between 50 and 55 lbf.in. (5.65 to 6.21 Nm).

(5) Install new ‘O’ ring seal (6) to fuel pressure switch (7) and secure to tube assembly (2).

(6) Safety the fuel pressure switch (7) with lockwire.

(7) Connect electrical connection (8) to fuel pressure switch (7).



Fuel pressure switch installation
Figure 403

4. Install oil temperature bulb *(Figure 404)*

A. Parts List

Item No.	Component	Units per assembly
1	‘O’ ring seal	1
2	Oil temperature bulb	1
3	Electrical connector	Reference only

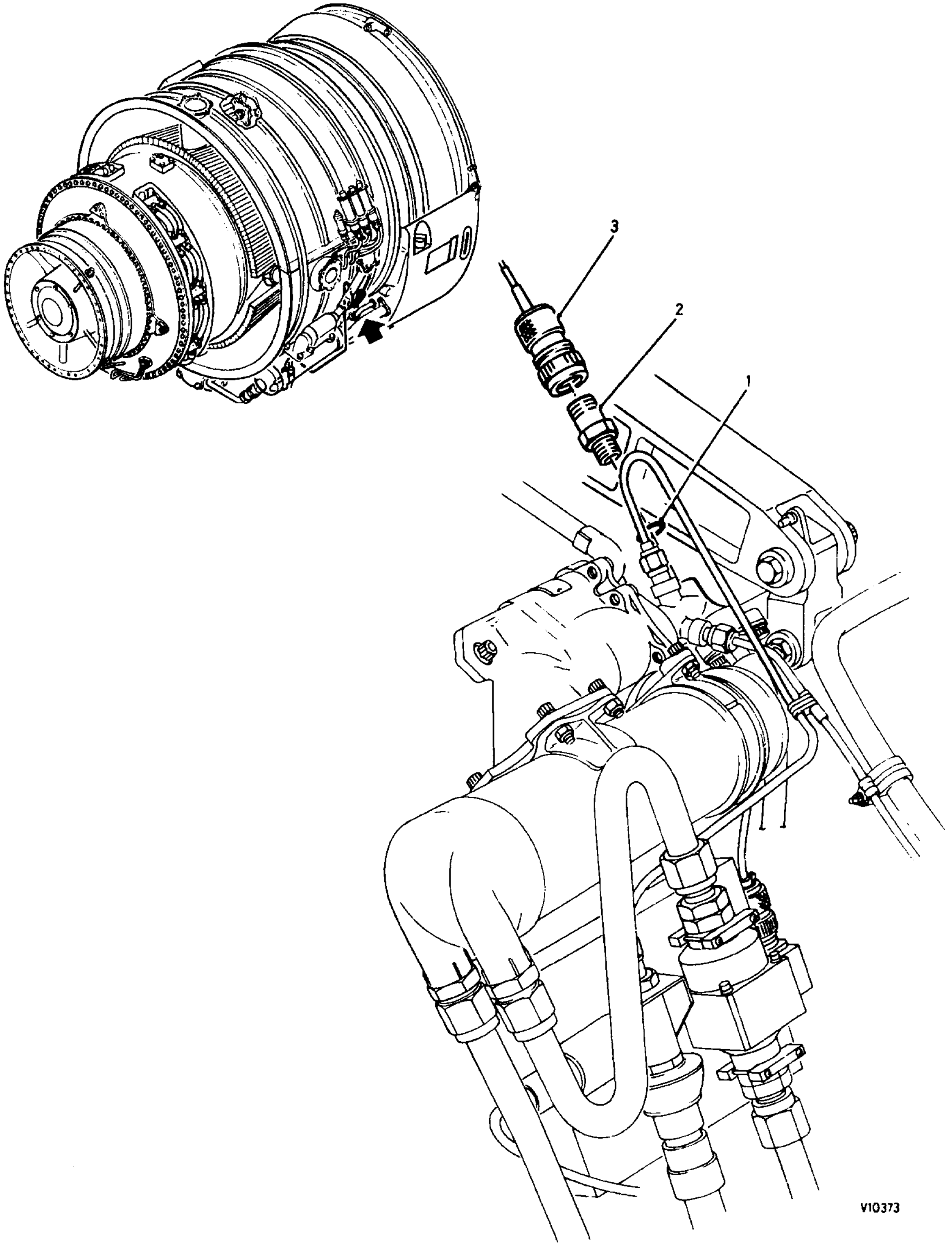
B. Procedure

(1) Remove blanks from oil temperature bulb (2) and engine aperture.

(2) Install new ‘O’ ring seal (1) to oil temperature bulb (2).

(3) Install oil temperature bulb (2).

(4) Connect electrical connector (3) to oil temperature bulb (2).



Oil temperature bulb installation
Figure 404

5. Install oil pressure transmitter *(Figure 405)*

A. Parts List

Item No.	Component	Units per assembly
1	Bracket assembly	1
2	Screw	2
3	Washer	2
4	Nut	2
5	Bracket assembly	1
6	Bracket assembly	1
7	Bolt	6
8	Washer	6
9	Tee-piece fitting	1
10	Nut	1
11	Washer	1
12	Pipe assembly	1
13	Clip	2
14	Screw	1
15	Washer	1
16	Nut	1
17	Oil pressure transmitter	1
18	‘O’ ring seal	1

B. Procedure

(1) Secure bracket assembly (1) to engine with attachment screws (2), washers (3) and nuts (4).

(2) Position bracket assembly (5) onto engine and secure bracket assembly (6) onto bracket assemblies (5) and (1) with attachment bolts (7) and washers (8).

(3) Secure tee-piece fitting (9) onto bracket assembly (6) with nut (10) and washer (11).

(4) Remove blanks from tee-piece fitting (9) and pipe assembly (12).

(5) Secure pipe assembly (12) to tee-piece fitting (9) and engine aperture. Safety the pipe unions with lockwire.

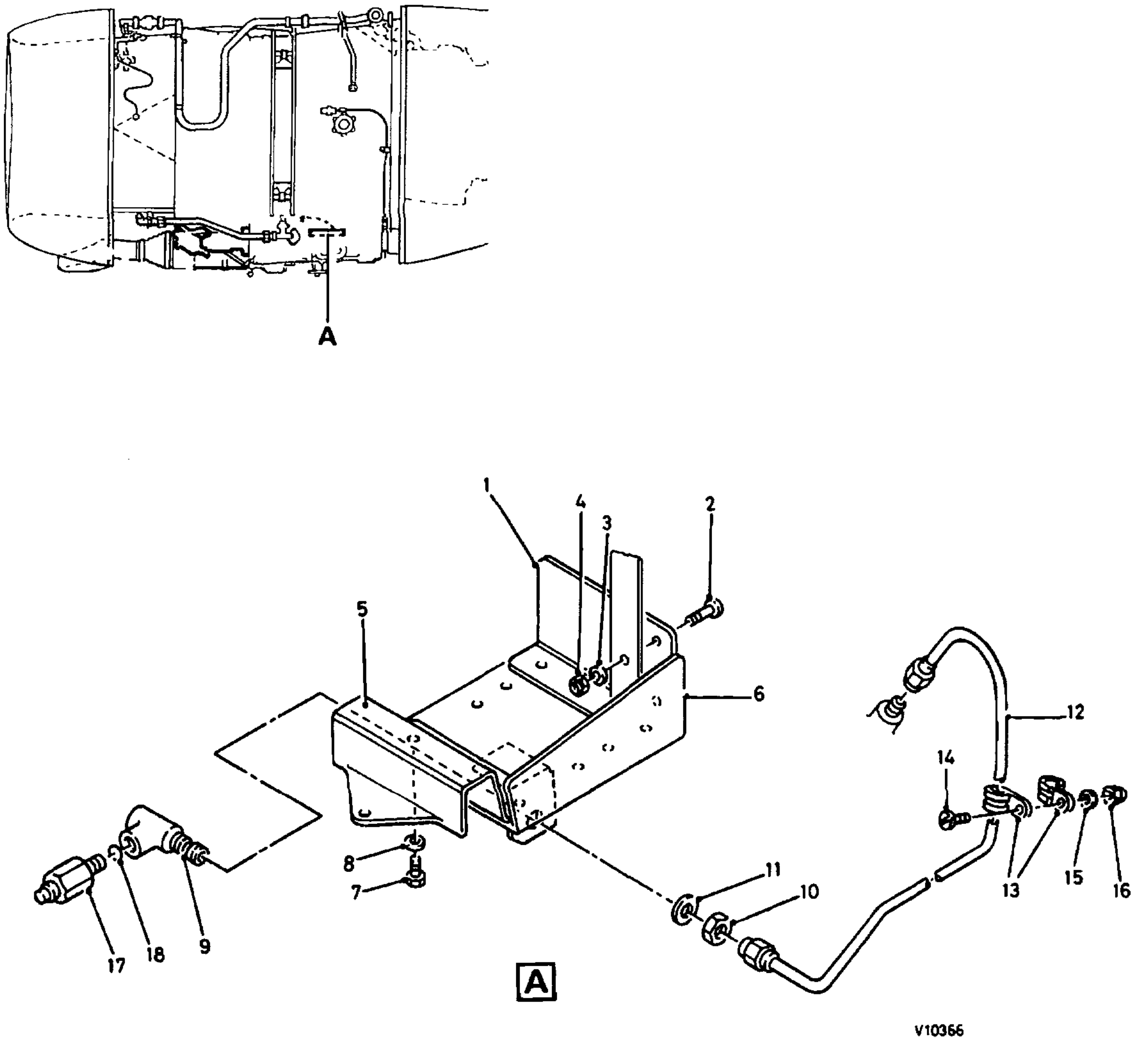
(6) Secure pipe assembly (12) to adjacent pipe using clips (13), screw (14), washer (15) and nut (16).

(7) Remove blanks from oil pressure transmitter (17) and tee-piece fitting.

(8) Install new 'O' ring seal (18) to oil pressure transmitter (17) and screw oil pressure transmitter (17) into tee-piece fitting (9).

(9) Safety the oil pressure transmitter (17) with lockwire.

(10) Connect electrical harness to oil pressure transmitter (17).



Oil pressure transmitter installation
Figure 405

6. Install oil pressure switch *(Figure 406)*

A. Parts List

Item No.	Component	Units per assembly
1	Tee-piece fitting	1
2	'O' ring seal	1
3	Nut	1
4	Tee-piece fitting	1
5	'O' ring seal	1
6	Oil pressure switch	1
7	'O' ring seal	1
8	Blank	1

B. Procedure

(1) Remove blanks from oil pressure switch (6), tee-piece fitting (4) and tee-piece fitting (1).

(2) Loosely screw down nut (3) onto tee-piece fitting (4) and install new 'O' ring seal to tee-piece fitting (4).

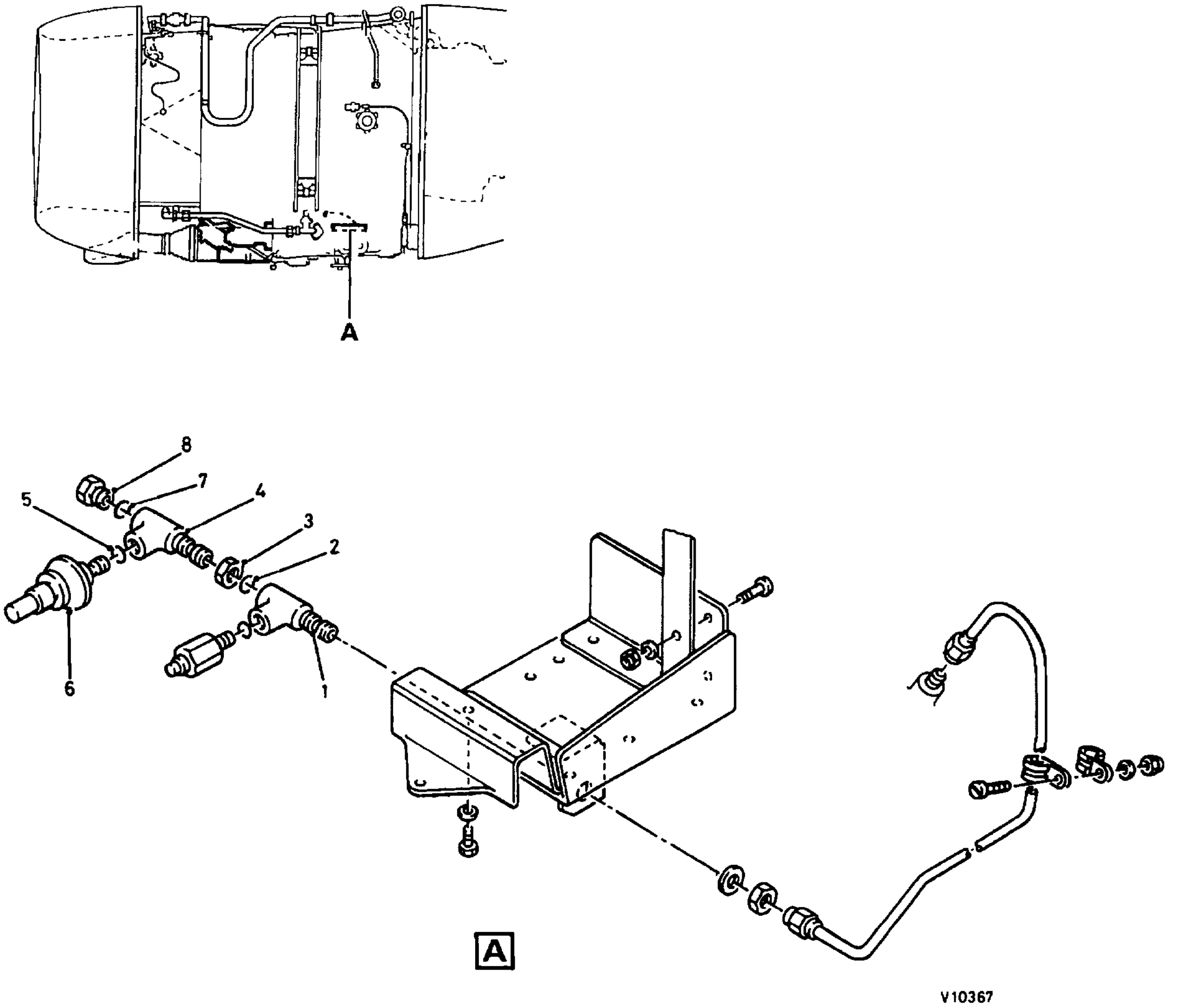
(3) Screw in tee-piece fitting (4) to tee-piece fitting (1).

(4) Install new 'O' ring seal (5) to oil pressure switch (6), screw oil pressure switch (6) into tee-piece fitting (4) and safety with lockwire.

(5) Set angle of oil pressure switch (6) to suit electrical harness, tighten down nut (3) on tee-piece fitting (1).

(6) Install 'O' ring seal (7) to blank (8), and screw blank (8) into tee-piece fitting (4).

(7) Connect electrical connector to oil pressure switch (6) and safety with lockwire.



Oil pressure switch installation
Figure 406

7. Install fuel flow transmitter *(Figure 407)*

A. Parts List

Item No.	Component	Units per assembly
1	Bracket assembly	Reference only
2	Fuel flow transmitter	1
3	Screw	4
4	Washer	4
5	Block support	4
6	Fuel pipe	Reference only
7	Fuel pipe	Reference only
8	Electrical connector	Reference only

B. Procedure

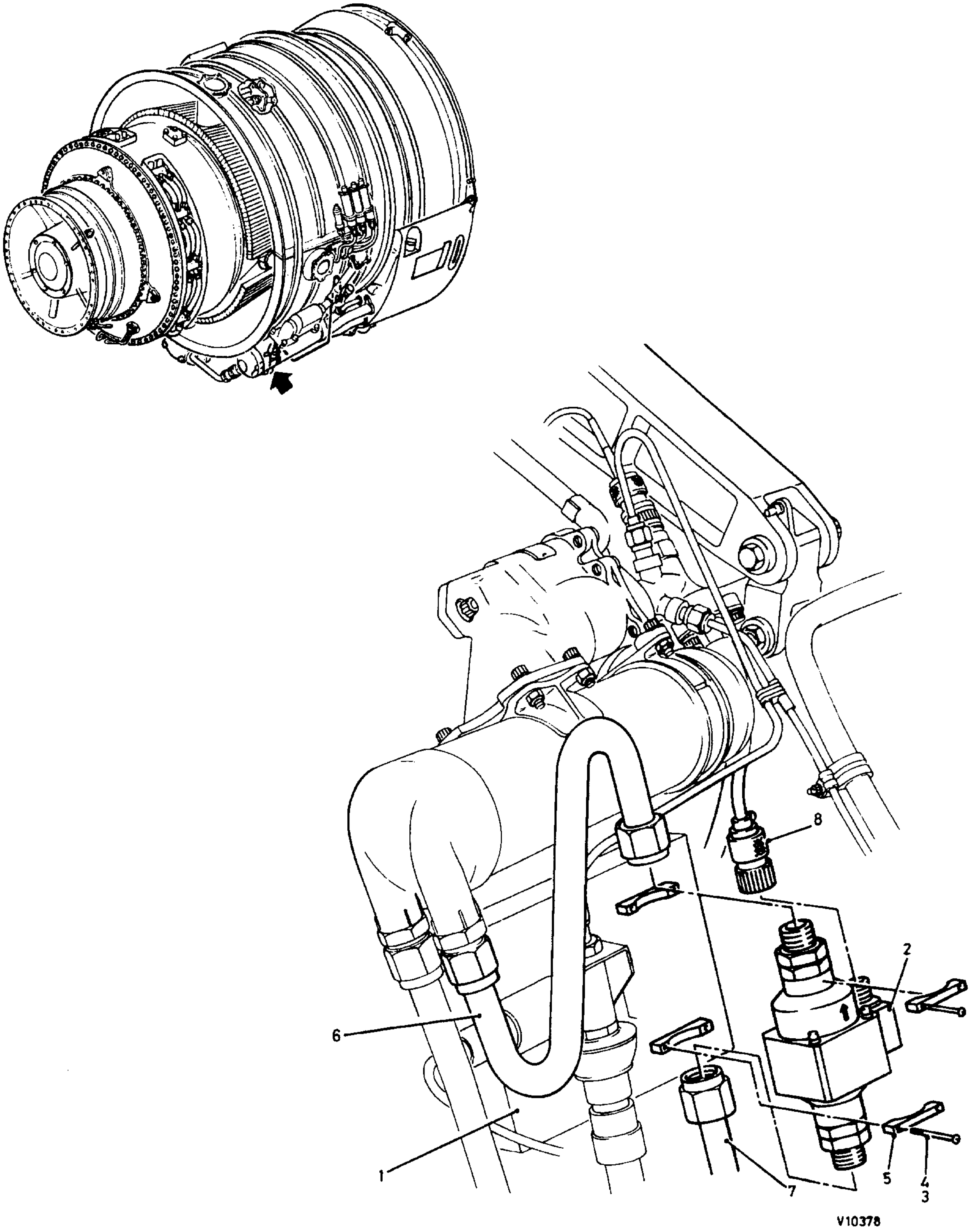
(1) Remove blanks from fuel flow transmitter (2) and fuel pipes (6), (7).

(2) Position fuel flow transmitter (2), with flow arrow indicating direction of fuel flow, with support blocks (5) on bracket assembly (1).

(3) Secure fuel flow transmitter (2) with screws (3) and washers (4).

(4) Connect the fuel pipes (6), (7) to the fuel flow transmitter (2) and safety with lockwire.

(5) Connect the electrical connector (8) to the fuel flow transmitter (2) and safety with lockwire.



Fuel flow transmitter installation
Figure 407

8. Install zone Two fire detection element with responder *(Figure 408)*

A. Parts List

Item No.	Component	Units per assembly
1	Bush	7
2	Clamp	7
3	Bolt	2
4	Mounting bracket	Reference only
5	Nut	2
6	P-clip	2
7	Fire detection element	1

B. Procedure

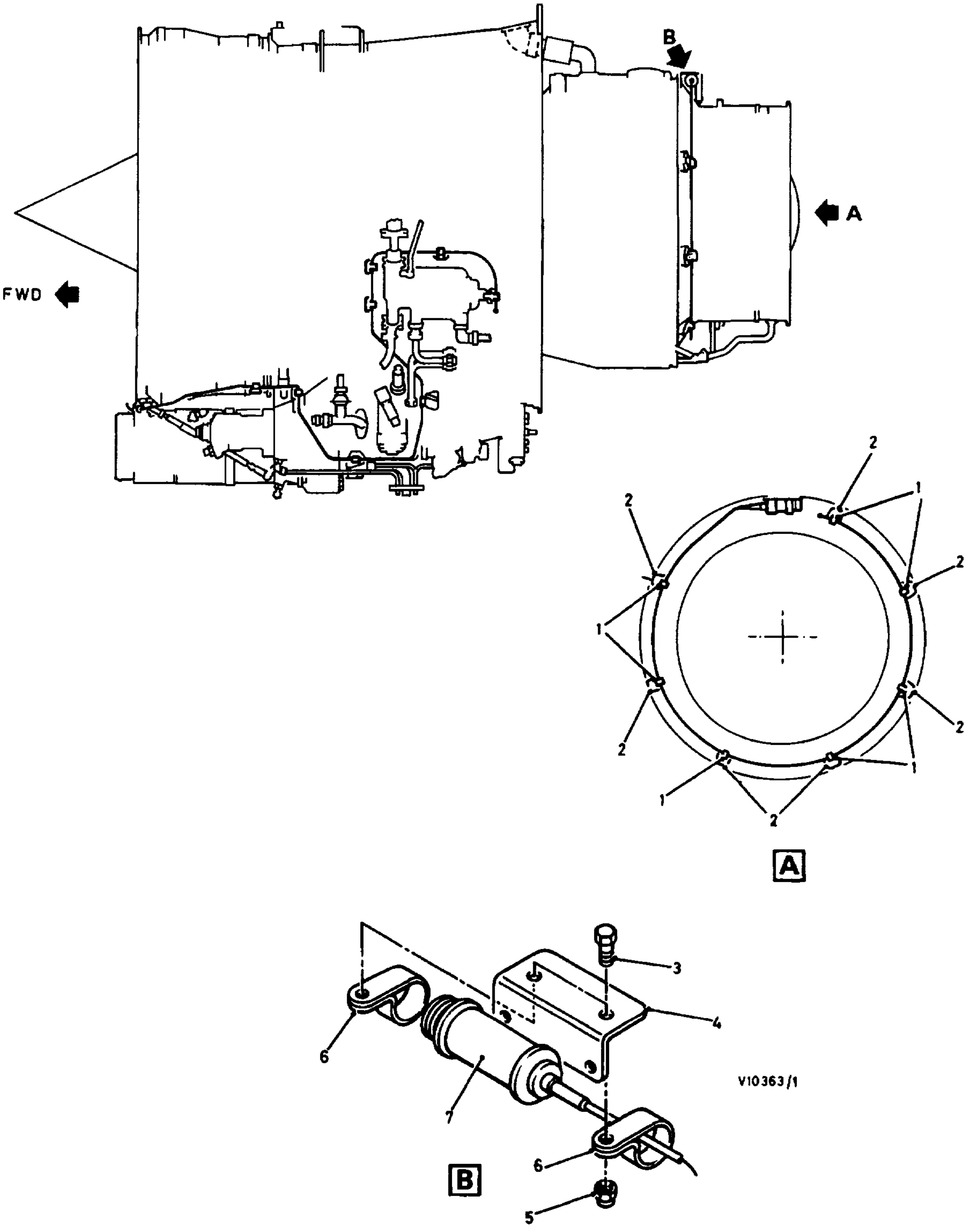
CAUTION: PREVENT KINKING THE DETECTOR ELEMENT DURING ROUTING TO ITS FINAL LAY. BENDS IN THE DETECTOR ELEMENT DUE TO ITS ROUTING MUST NOT BE LESS THAN 0.50 IN. (12.70 mm).

(1) Carefully thread detector element (7) through the seven fire detection element clamps (2).

(2) Secure responder (7) to mounting bracket (4) with P-clips (6), bolts (3) and nuts (5).

NOTE: Responder attachment bolt heads (3) must be Installed on top of the bracket (4).

(3) Secure detector element (7) to each clamp (2) with a slotted bush (1).



Zone Two fire detection element installation
Figure 408

9. Install zone One fire detector element with responder *(Figure 409)*

A. Parts List

Item No.	Component	Units per assembly
1	Fire detection element	1
2	Clamp	13
3	Bush	13
4	P-clip	2
5	Bolt	2

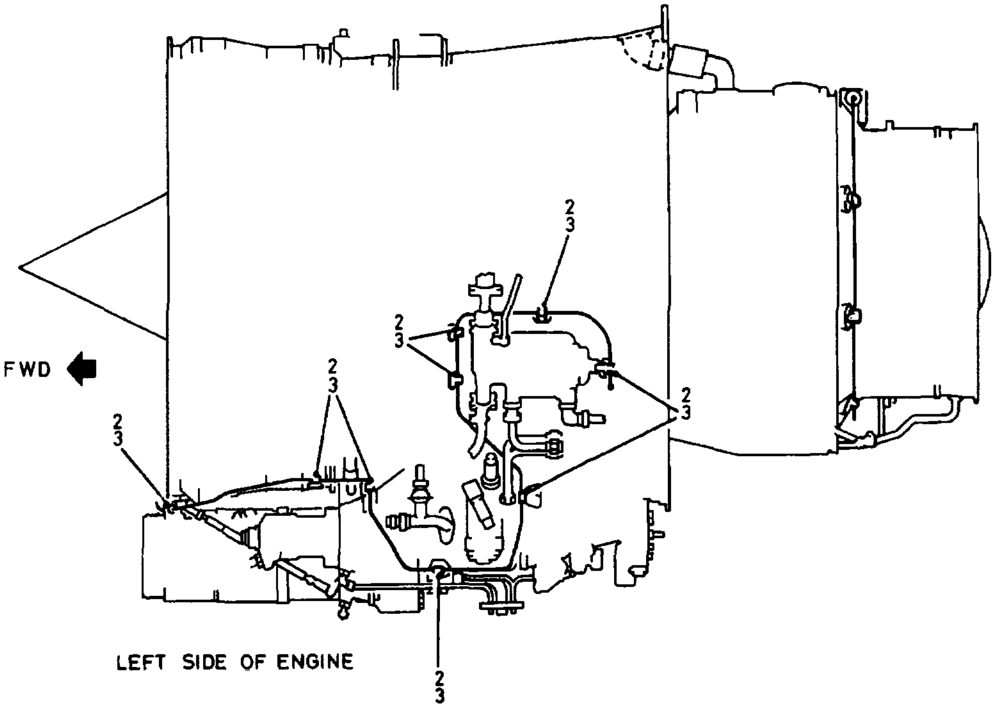
B. Procedure

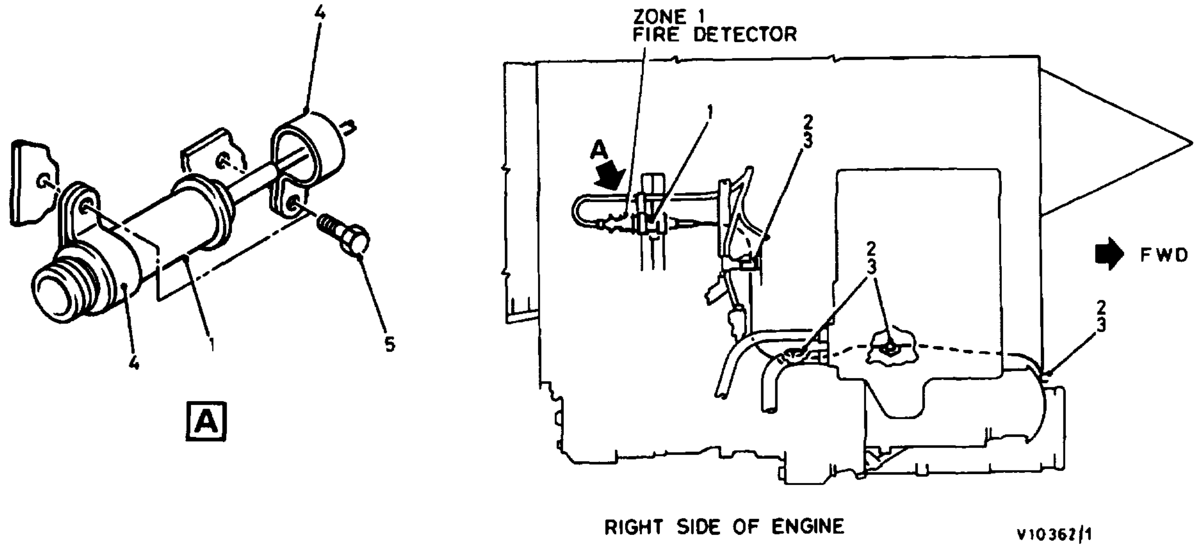
CAUTION: PREVENT KINKING THE DETECTOR ELEMENT DURING ROUTING TO ITS FINAL LAY. BENDS IN THE DETECTOR ELEMENT DUE TO ITS ROUTING MUST NOT BE LESS THAN 0.50 IN. (12.70 mm).

(1) Carefully thread detector element (1) through the thirteen fire detection element clamps (2).

(2) Secure responder (1) to its mounting on the right hand side of the engine with P-clips (4) and bolts (5).

(3) Secure detector element (1) to each clamp with a slotted bush (3).





Zone One fire detection element installation
Figure 409

10. Install engine exhaust duct *(Figure 410)*

A. Parts List

Item No.	Component	Units per assembly
1	Engine exhaust duct	1
2	Coupling assembly	1

B. Procedure

(1) Remove blank from exhaust fan duct on engine.

(2) Loosely assemble exhaust duct (1) on engine exhaust flange with the two halves of the coupling assembly (2).

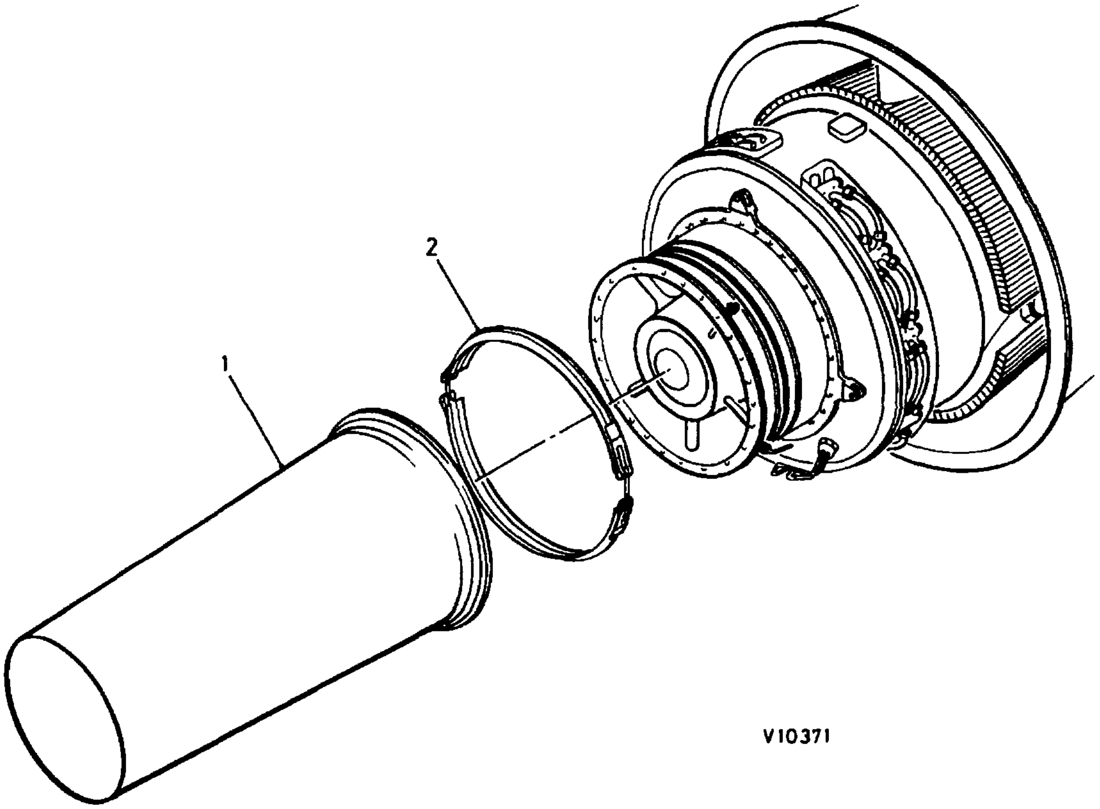
NOTE: To assist with correct locating of the exhaust duct (1) there is a locating pin at the 3 o'clock position looking forward on the engine.

(3) Tighten nuts on the coupling T-bolts equally and torque tighten to the value engraved on clamp flange (45 to 50 lbf.in.) (5.08 to 5.65 Nm).

(4) Tap circumference of clamp flange halves with a non-metallic mallet.

(5) Re-torque each nut to value engraved on clamp flange (45 to 50 lbf.in.) (5.08 to 5.65 Nm).

(6) Repeat paragraphs (4) and (5).



Engine exhaust duct installation
Figure 410

11. Install hydraulic pump *(Figure 411)*

A. Parts List

Item No.	Component	Units per assembly
1	Drive gearbox	Reference only
2	Mounting studs	Reference only
3	Gasket	1
4	Hydraulic pump assembly	1
5	Nut	4

B. Procedure

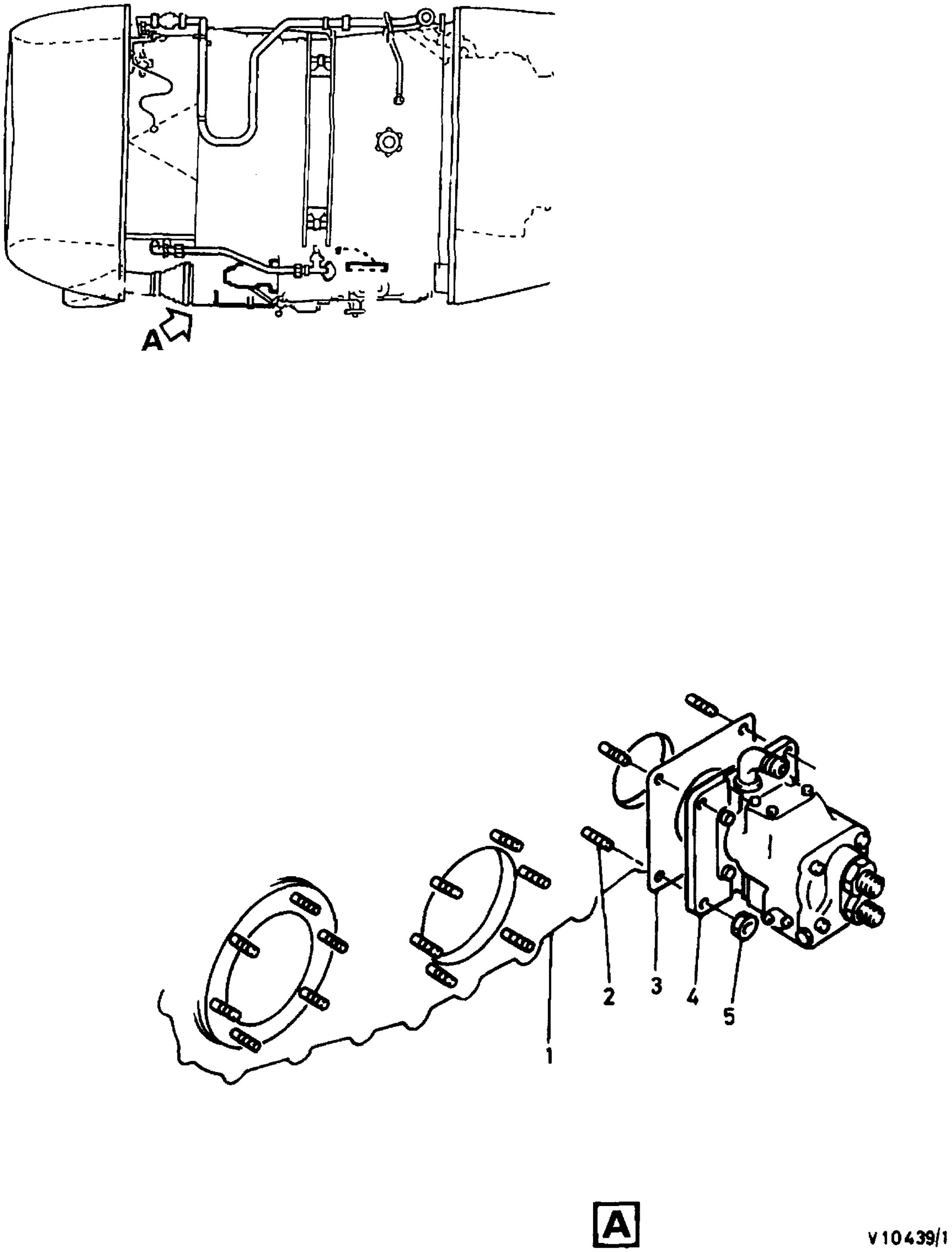
(1) Remove blank from accessories drive gearbox hydraulic aperture (1) and install new gasket (3).

(2) Pack spline cavity of hydraulic pump drive spline on forward face of accessory drive gearbox with grease (Item 054) (CONSUMABLE MATERIALS).

(3) Install hydraulic pump assembly (4) by keeping splined shaft aligned with its mating drive on accessories gearbox. Carefully engage the drive and push hydraulic pump assembly (4) fully into position over mounting studs (2).

(4) Lubricate hydraulic pump mounting studs (2) with clean engine oil.

(5) Install securing nuts (5) to hydraulic pump mounting studs (2) and tighten to a torque of 100 to 110 lbf.in. (11.30 to 12.43 Nm).



Hydraulic pump installation
Figure 411

12. Install starter generator QAD adapter *(Figure 412)*

A. Parts List

Item No.	Component	Units per assembly
1	Drive gearbox	Reference only
2	Mounting studs	Reference only
3	Gasket seal	1
4	QAD adapter	1
5	Nut	6
7	Strap assembly	1
8	Washer	1
9	Nut	1

B. Procedure

(1) Remove blank from aperture on accessories drive gearbox (1).

(2) Install new gasket (3) over mounting studs (2).

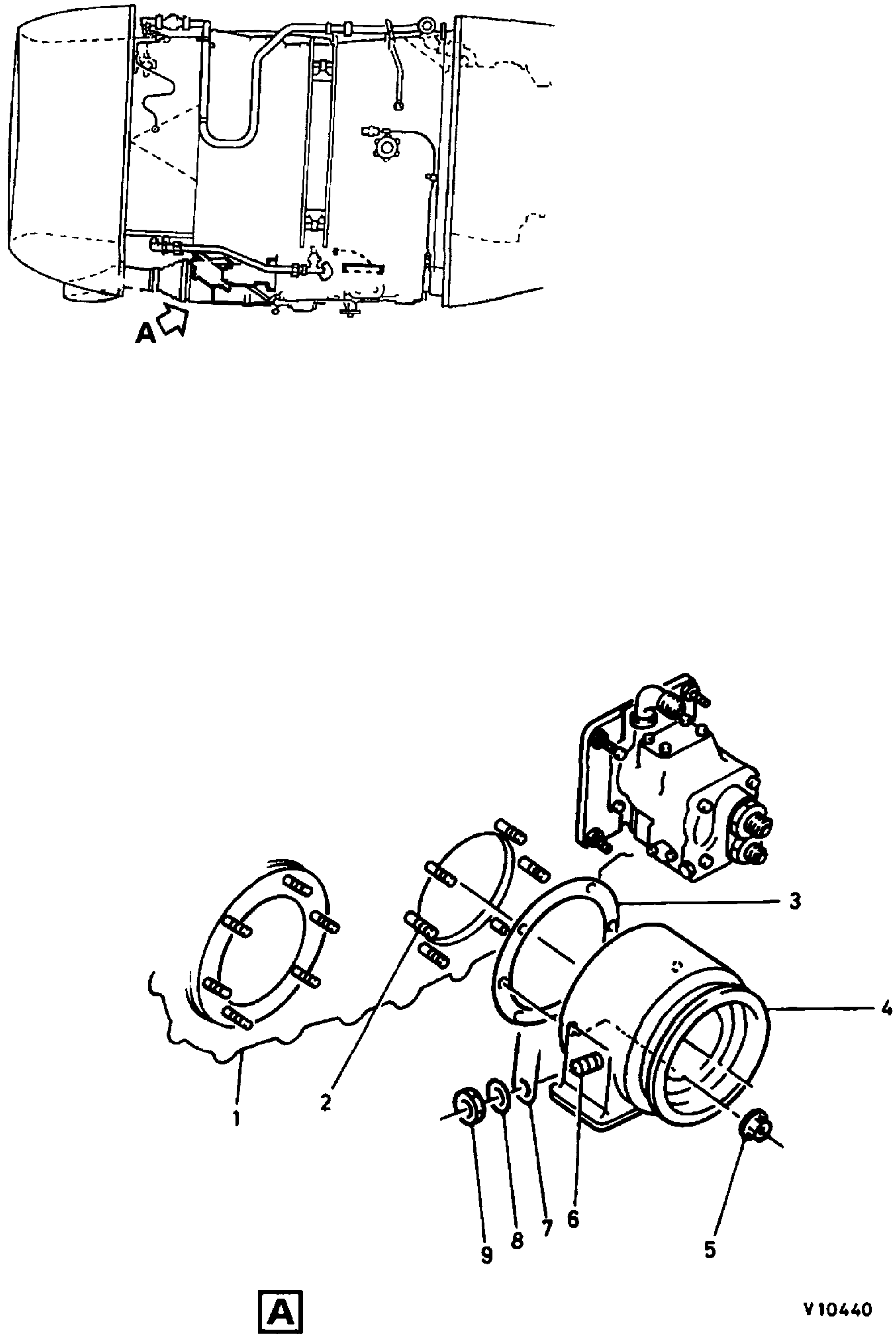
(3) Lubricate mounting studs (2) on accessories drive gearbox with clean engine oil.

(4) Install starter/generator QAD adapter (4) with exhaust outlet facing downwards.

(5) Secure with attachment nuts (5). Tighten nuts to a torque of 100 to 110 lbf.in. (11.30 to 12.43 Nm).

(6) Position bonding strap assembly (7) over stud (6) on QAD adapter (4).

(7) Secure with nut (9) and washer (8), in accordance with ELECTRICAL BONDING, Method 22.



Starter generator QAD adapter installation
Figure 412

13. Install AC generator adapter *(Figure 413)*

A. Parts List

Item No.	Component	Units per assembly
1	Drive gearbox	Reference only
2	Mounting studs	Reference only
3	Gasket	1
4	Adapter	1
5	Nut	6

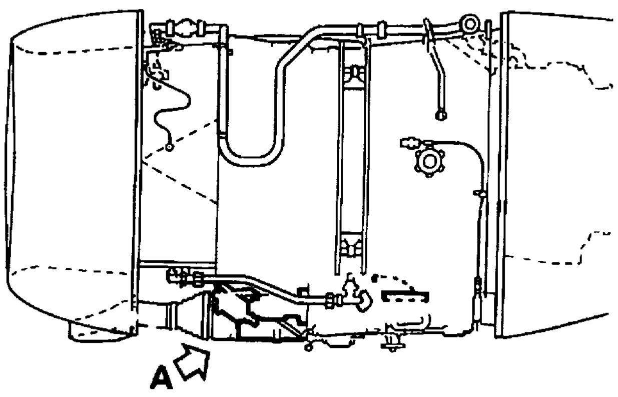
B. Procedure

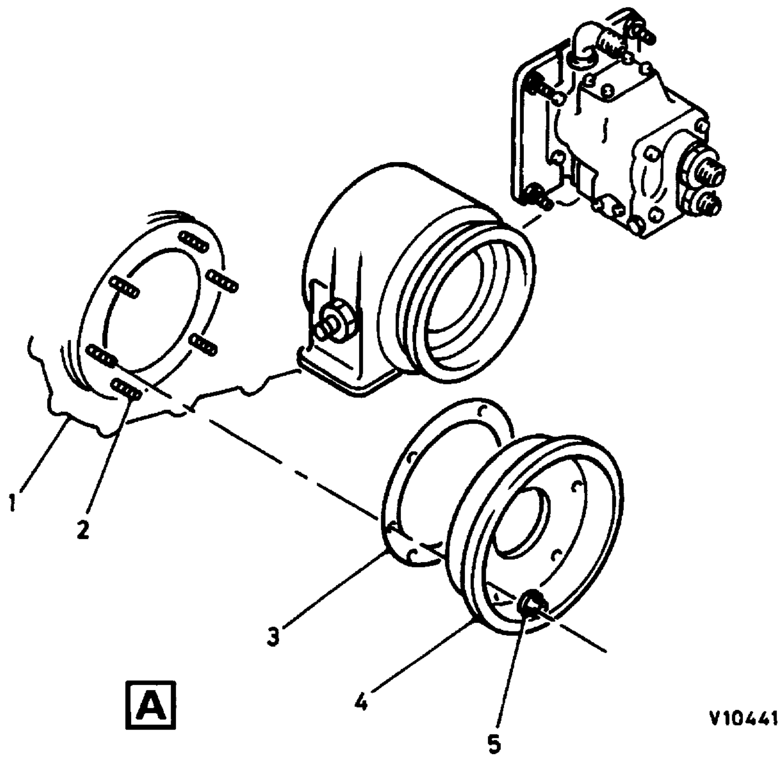
(1) Remove blank from aperture on accessories drive gearbox (1).

(2) Install new gasket (3) over mounting studs (2).

(3) Lubricate mounting studs (2) on accessories gearbox (1) with clean engine oil.

(4) Install AC generator adapter (4) and secure with nuts (5). Tighten nuts to a torque of 100 to 110 lbf.in. (11.30 to 12.43 Nm).



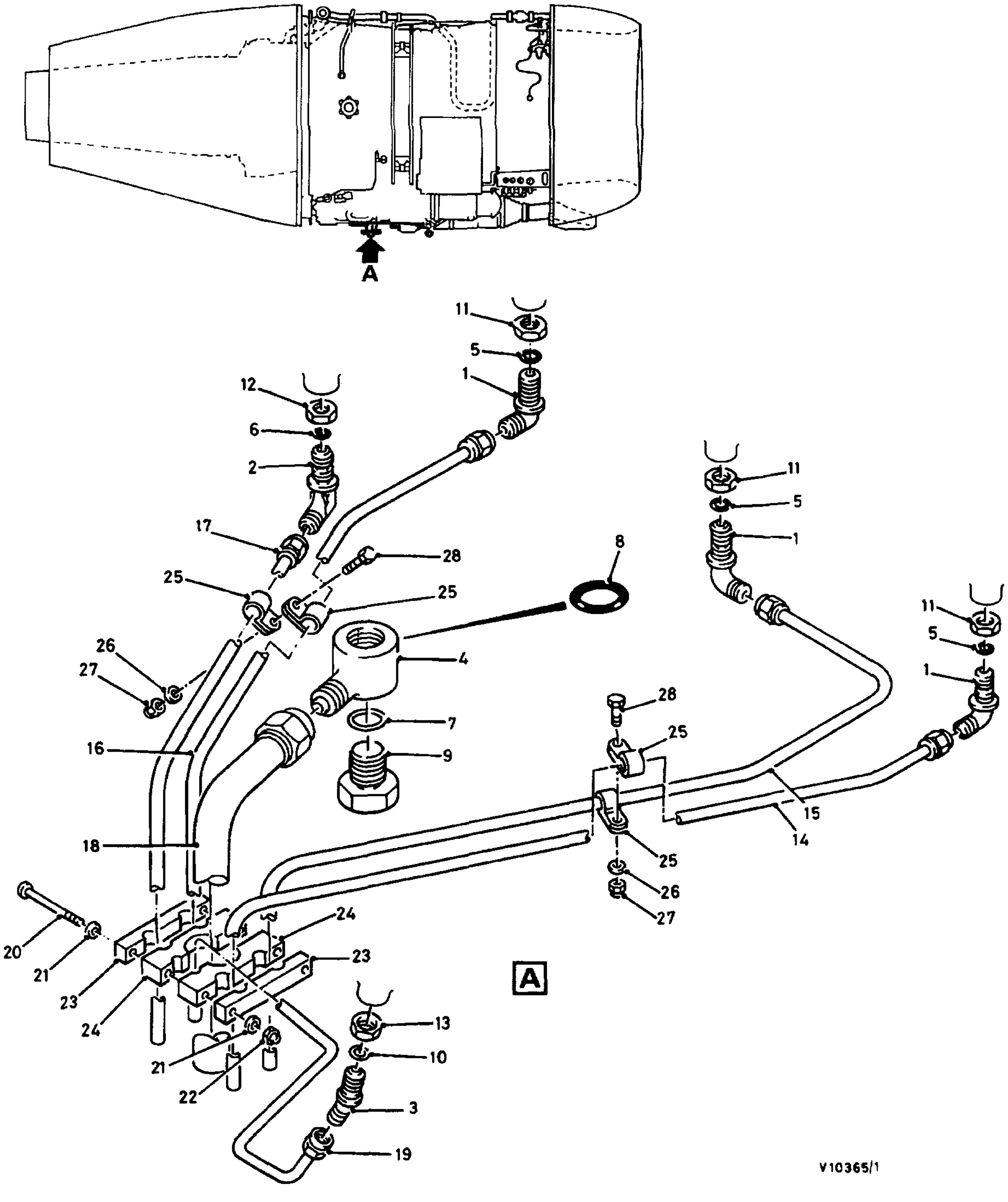


AC generator adapter installation
Figure 413

14. Install engine witness drain pipes *(Figure 414)*

A. Parts List

Item No.	Component	Units per assembly
1	Elbow	3
2	Elbow	1
3	Elbow	1
4	Elbow	1
5	'O' ring seal	3
6	'O' ring seal	1
7	'O' ring seal	1
8	'O' ring seal	1
9	Bolt	1
10	'O' ring seal	1
11	Nut	3
12	Nut	1
13	Nut	1
14	Pipe assembly	1
15	Pipe assembly	1
16	Pipe assembly	1
17	Pipe assembly	1
18	Pipe assembly	1
19	Pipe assembly	1
20	Screw	2
21	Washer	4
22	Nut	2
23	Clamp block	2
24	Clamp block	2
25	P-clip	4
26	Washer	2
27	Nut	2
28	Screw	2



Engine witness drain pipes installation
Figure 414

B. Procedure

(1) Remove blanks from drain pipes (14), (15), (16), (17), (18), (19) and pipe apertures on engine.

(2) Install elbow fittings (1), (2) and (3), complete with 'O' ring seals (5), (6) and (10) to engine apertures.

(3) Position elbow fitting (4), complete with 'O' ring seals (7) and (8), and install bolt (9).

(4) Connect drain pipes (14), (15), (16), (17), (18) and (19) to elbow fittings (1), (2), (3) and (4).

(5) Assemble clamp blocks (23) and (24) with screws (20), nuts (22) and washers (21), and install to the drain pipes (14), (15), (16), (17), (18) and (19).

(6) Tighten pipe coupling nuts.

NOTE: Make sure the fuel control drain pipe (19) is installed with a continuous fall to prevent fuel becoming trapped in pipe, and also install fuel control drain pipe (19) so outlet is flush with clamp block.

(7) Tighten elbow fitting locknuts (11), (12), (13) and (9).

(8) Install P-clips (25) and bolt (28), nut (27) and washers (26) to pipe assemblies (14) and (15).

(9) Install P-clips (25) with bolt (28), nut (27) and washer (26) to pipe assemblies (16) and (17).

COMMON ENGINE STANDARD

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HP line assembly 424

1. Remove engine witness drain pipes *(Figure 401)*

NOTE: Refer to the Illustrated Parts Catalogue (IPC) for the part numbers of components listed in these procedures.

A. Procedure

(1) Remove bolt (28), nut (27), washer (26) and P-clips (25) from pipe assemblies (16) and (17).

(2) Remove bolt (28), nut (27), washer (26) and P-clips (25) from pipe assemblies (14) and (15).

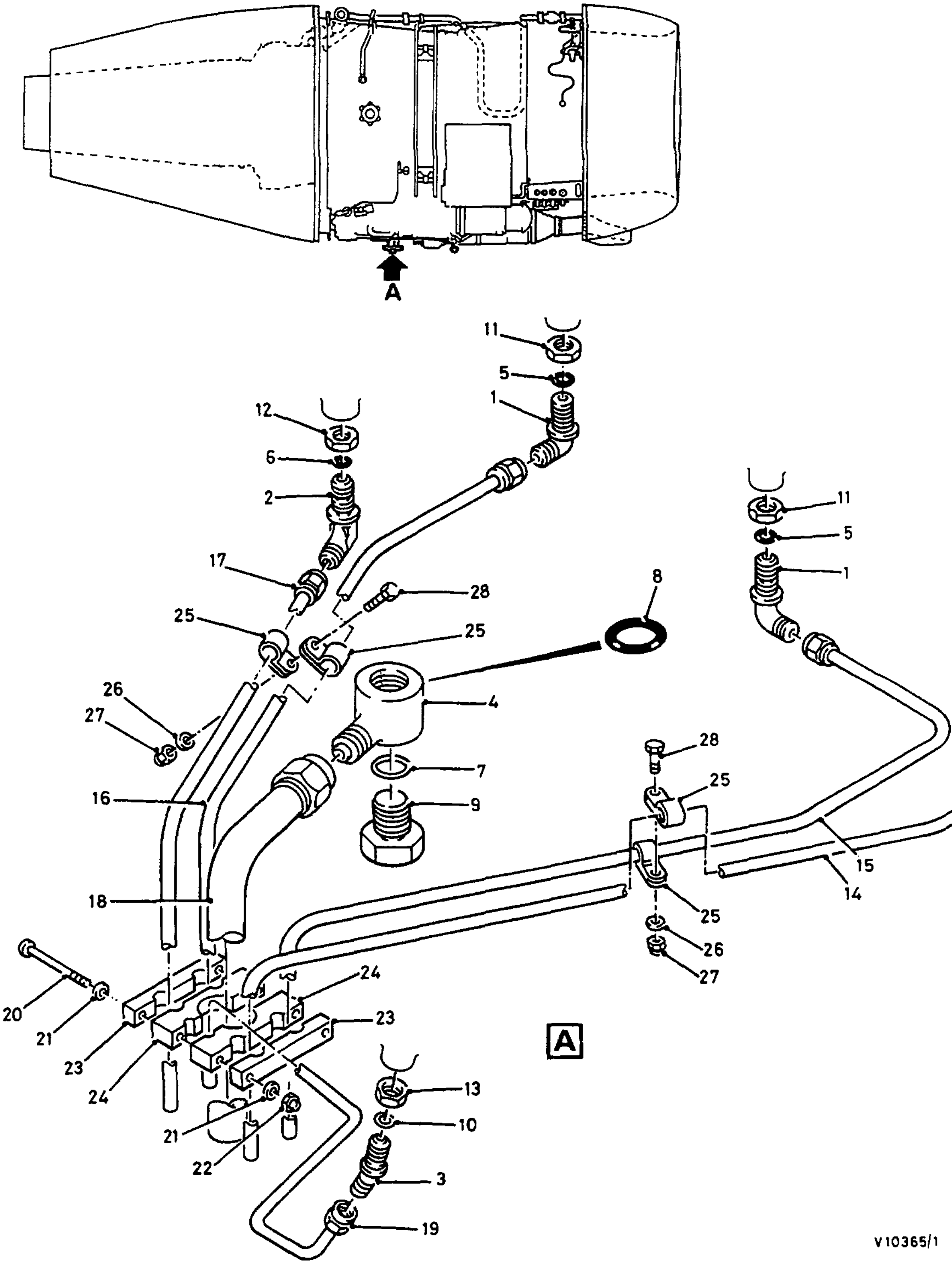
(3) Remove clamp blocks (23) and (24) with screws (20), nuts (22) and washers (21) from drain pipes (14), (15), (16), (17), (18) and (19).

(4) Remove drain pipes (14), (15), (16), (17), (18) and (19) from elbow fittings (1), (2), (3) and (4).

(5) Loosen elbow fitting locknuts (11), (12) and (13), and remove elbow fittings (1), (2) and (3) complete with 'O' ring seals (5), (6) and (10). Discard 'O' ring seals.

(6) Remove bolt (9) and then, remove elbow fitting (4) complete with 'O' ring seals (7) and (8). Discard 'O' ring seals.

(7) Put blanks on drain pipes (14), (15), (16), (17), (18) and (19), and pipe apertures on engine.



Engine witness drain pipes removal
Figure 401

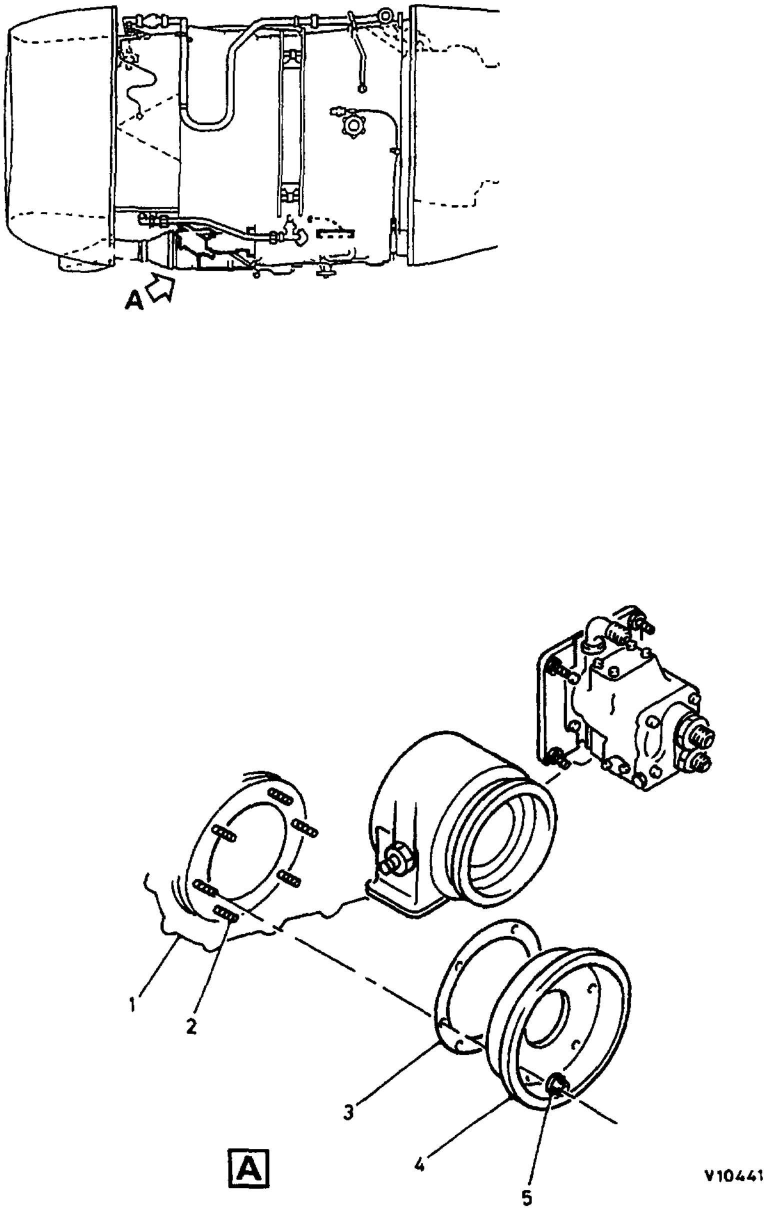
2. Remove AC generator adapter *(Figure 402)*

A. Procedure

(1) Remove nuts (5) securing AC generator adapter (4), and remove AC generator adapter (4) from accessories drive gearbox (1).

(2) Remove gasket (3) from mounting studs (2) and discard.

(3) Put a blank over aperture on accessories drive gearbox (1).



AC generator adapter removal
Figure 402

3. Remove starter generator QAD adapter *(Figure 403)*

A. Procedure

(1) Remove nut (9) and washer (8) from stud (6) on QAD adapter (4).

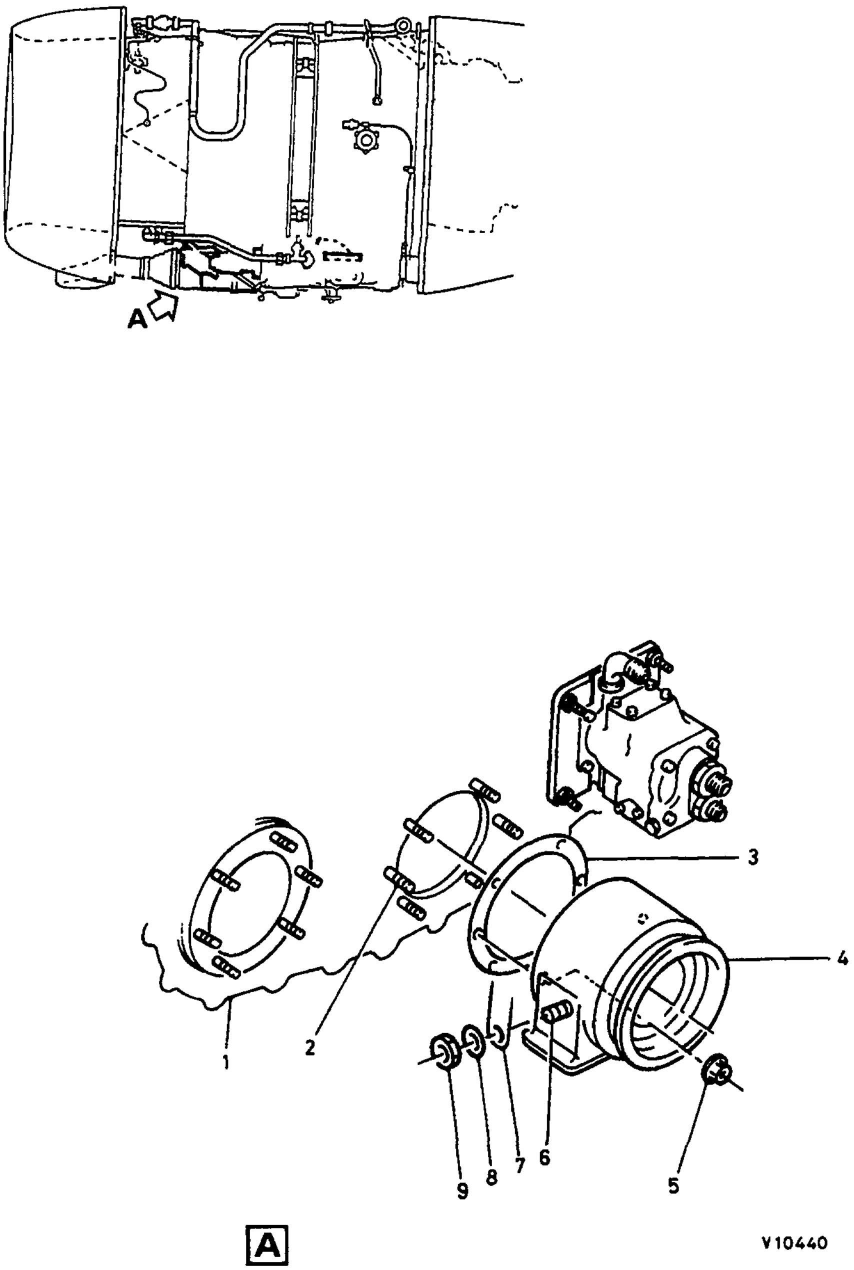
(2) Remove bonding strap assembly (7) from stud (6) on QAD adapter (4).

(3) Remove attachment nuts (5) from QAD adapter mounting studs (2).

(4) Remove QAD adapter from studs (2) on accessories drive gear box (1).

(5) Remove gasket (3) from mounting studs (2) and discard.

(6) Put a blank over aperture on accessories drive gearbox (1).



Starter generator QAD adapter removal
Figure 403

4. Remove hydraulic pump *(Figure 404)*

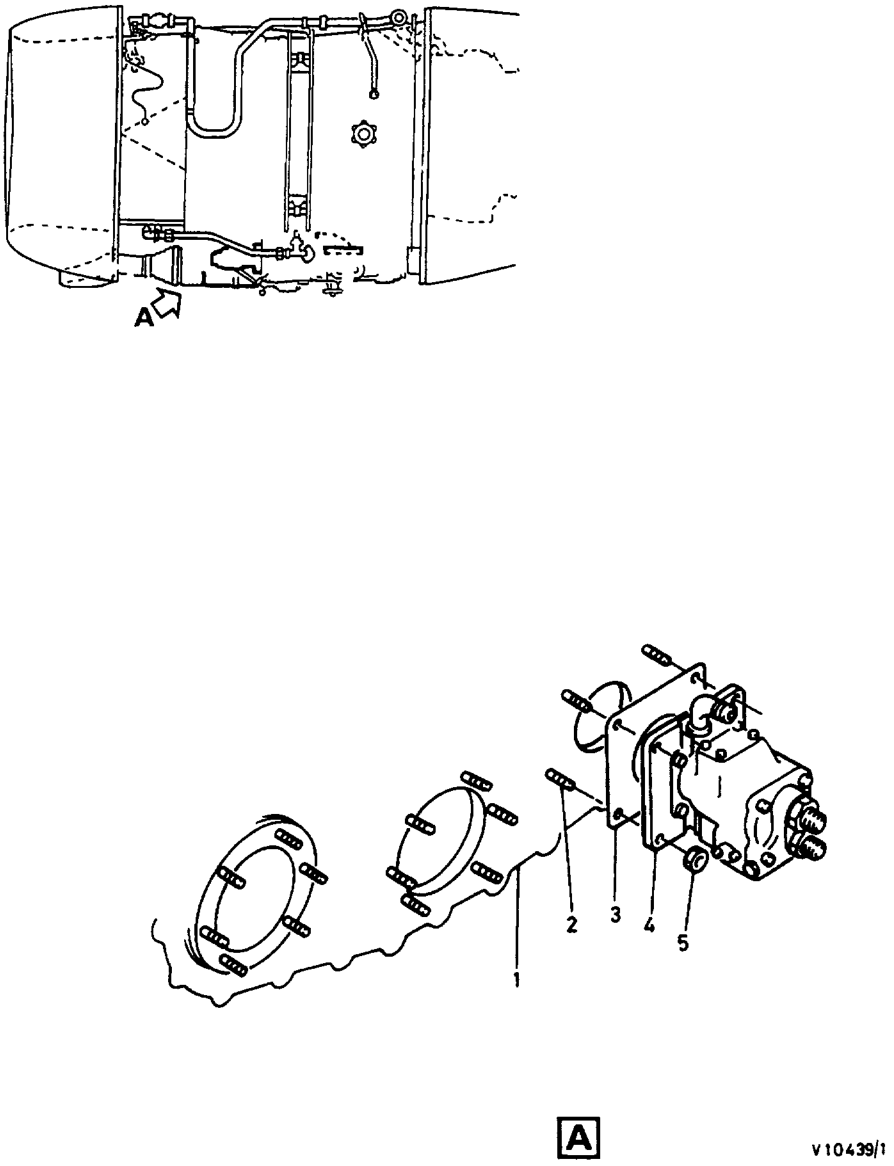
A. Procedure

(1) Disconnect and remove hydraulic pump assembly securing nuts (5).

(2) Withdraw hydraulic pump assembly (4) keeping it aligned until its drive shaft disengages.

(3) Remove hydraulic pump assembly (4), remove gasket (3) from mounting studs (2) and discard.

(4) Blank off aperture on accessories drive gearbox (1).



Hydraulic pump removal
Figure 404

5. Remove engine exhaust duct *(Figure 405)*

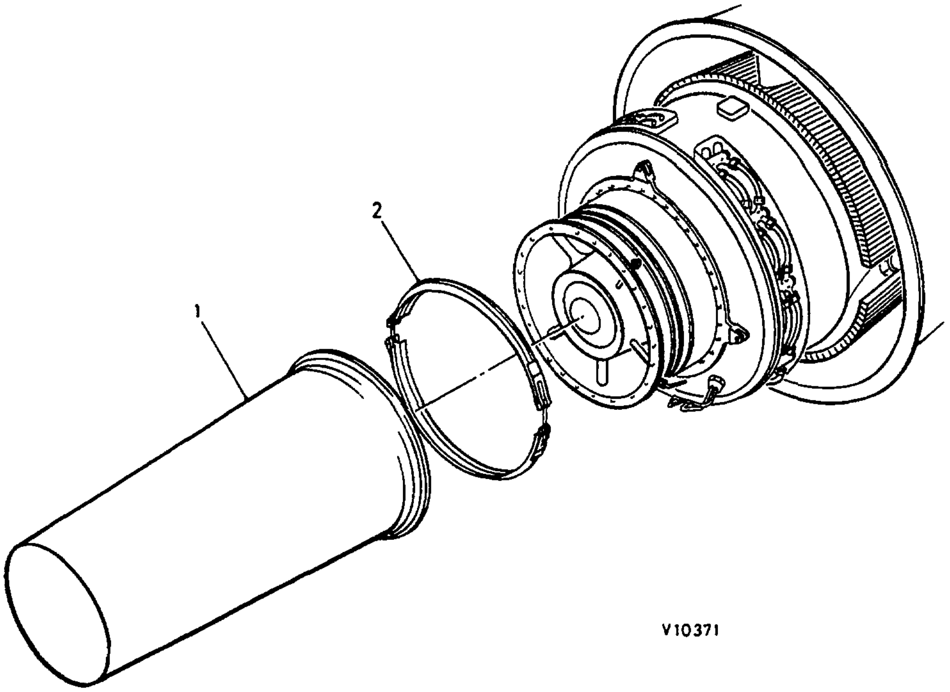
A. Procedure

(1) Support the exhaust tube assembly (1).

(2) *Unscrew the exhaust duct coupling* T-bolt *self-locking high temperature nuts and remove* coupling assembly (2).

(3) Withdraw the engine exhaust duct (1) rearwards.

(4) Blank off the exhaust fan duct aperture on engine.



Engine exhaust duct removal
Figure 405

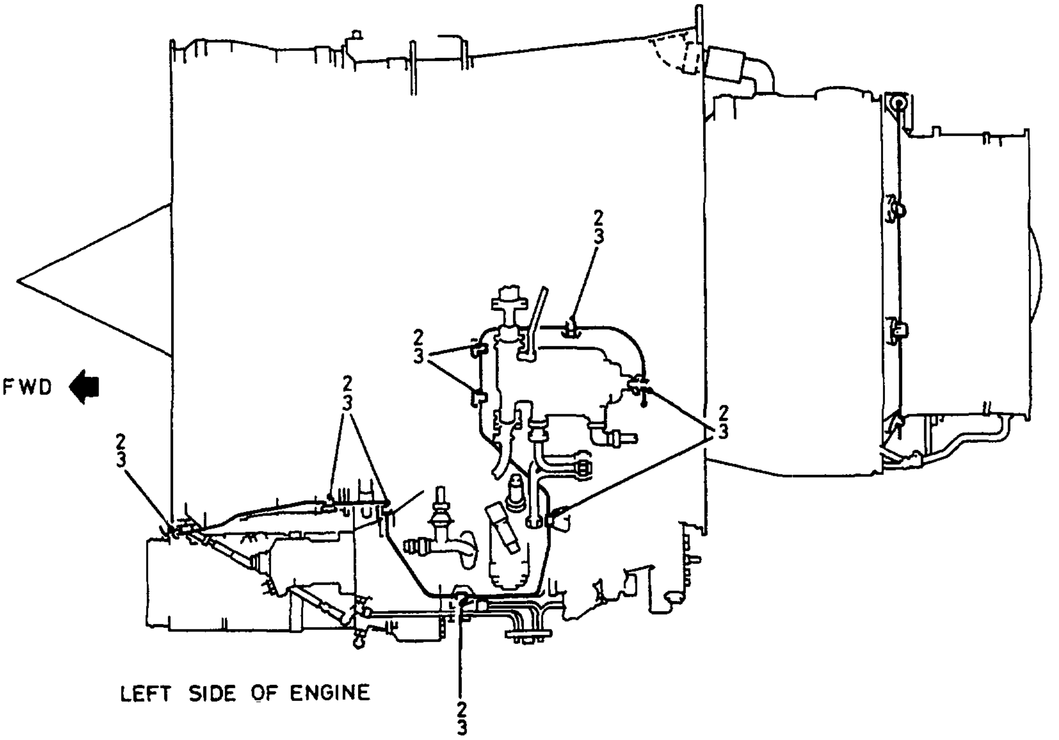
6. Remove Zone One fire detector element with responder *(Figure 406)*

A. Procedure

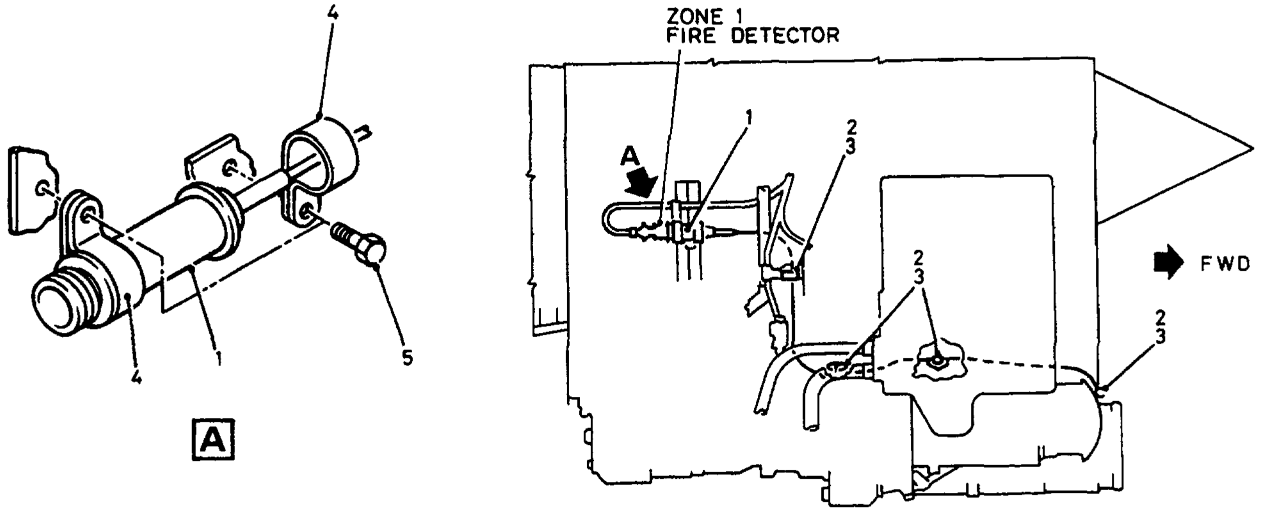
(1) Disconnect and remove bolts (5) and P-clips (4) securing responder to its mounting.

(2) Remove slotted bushes (3) securing the fire detector element (1) to the clamps. Retain bushes (3).

(3) Carefully withdraw the fire detector element (1) from the thirteen clamps.



LEFT SIDE OF ENGINE



RIGHT SIDE OF ENGINE

V10362/1

Zone One fire detection element removal
Figure 406

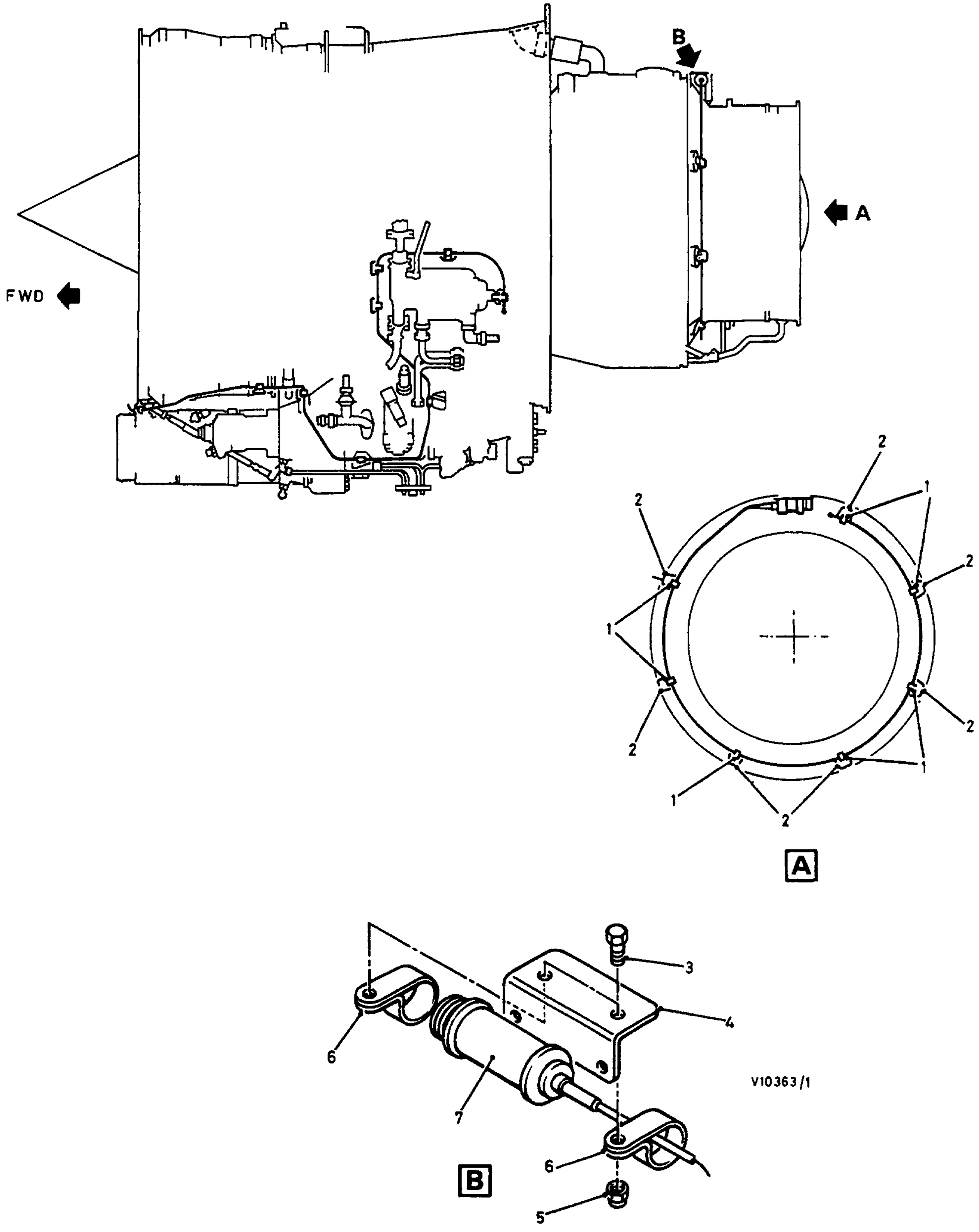
7. Remove Zone Two fire detector element with responder *(Figure 407)*

A. Procedure

(1) Remove slotted bushes (1) from each element clamp (2).

(2) Disconnect and remove bolts (3), nuts (5) and clips (6) securing responder (7) to mounting bracket (4).

(3) Carefully withdraw detector element (7), complete with responder, from each clamp. Remove fire detector element (7), complete with responder from engine.



Zone Two fire detection element removal
Figure 407

8. Remove fuel flow transmitter *(Figure 408)*

A. Procedure

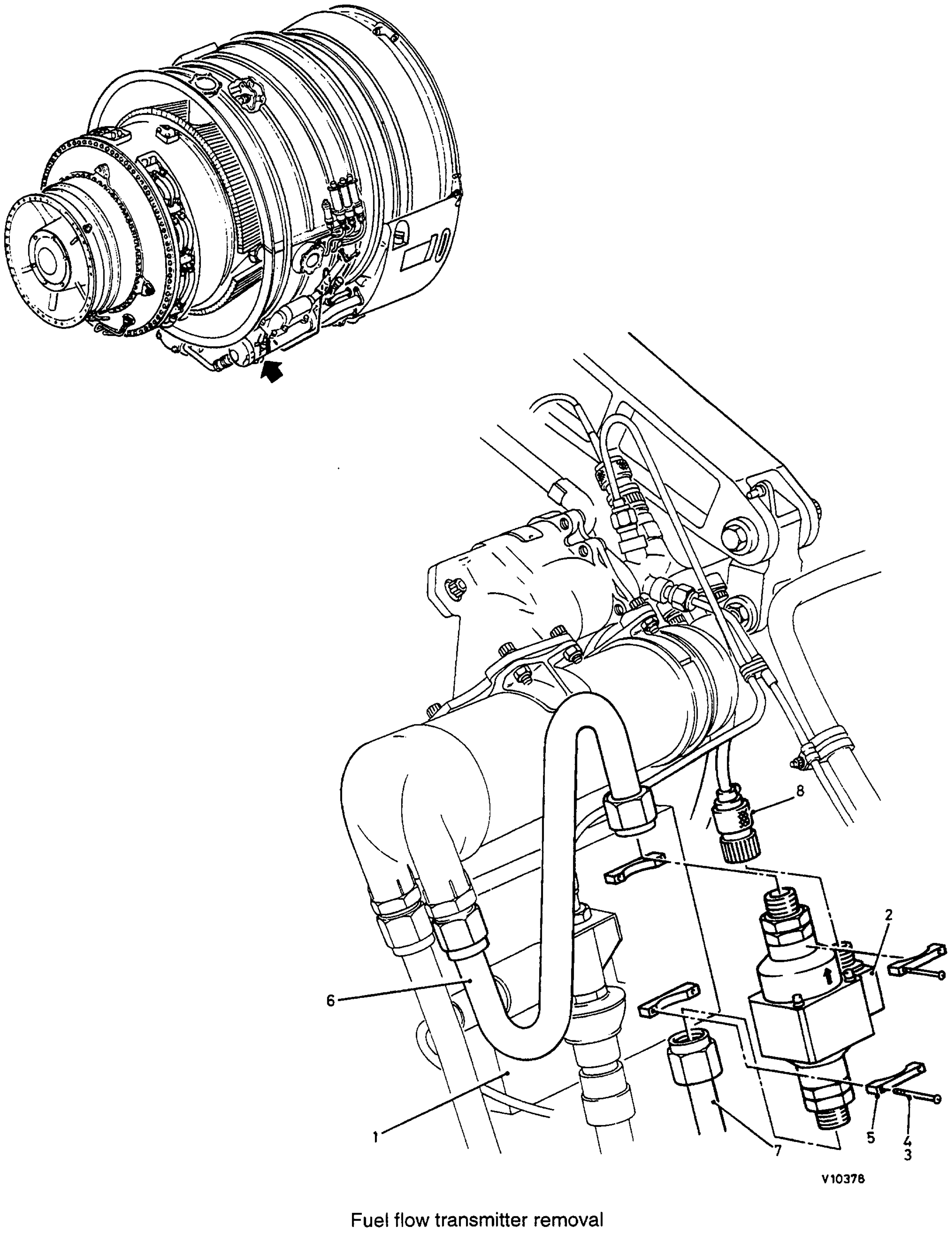
(1) Disconnect electrical connector (8) to the fuel flow transmitter (2).

(2) Disconnect fuel pipes (6) and (7) to the fuel flow transmitter (2) and blank off.

(3) Remove screws (3) and washers (4) securing blocks (5) and fuel flow transmitter (2).

(4) Withdraw fuel flow transmitter (2) with support blocks (5) from the bracket assembly (1).

(5) Put blanks on fuel flow transmitter (2).



Fuel flow transmitter removal

Figure 408

9. Remove oil pressure switch *(Figure 409)*

A. Procedure

(1) Disconnect electrical harness from oil pressure switch (6).

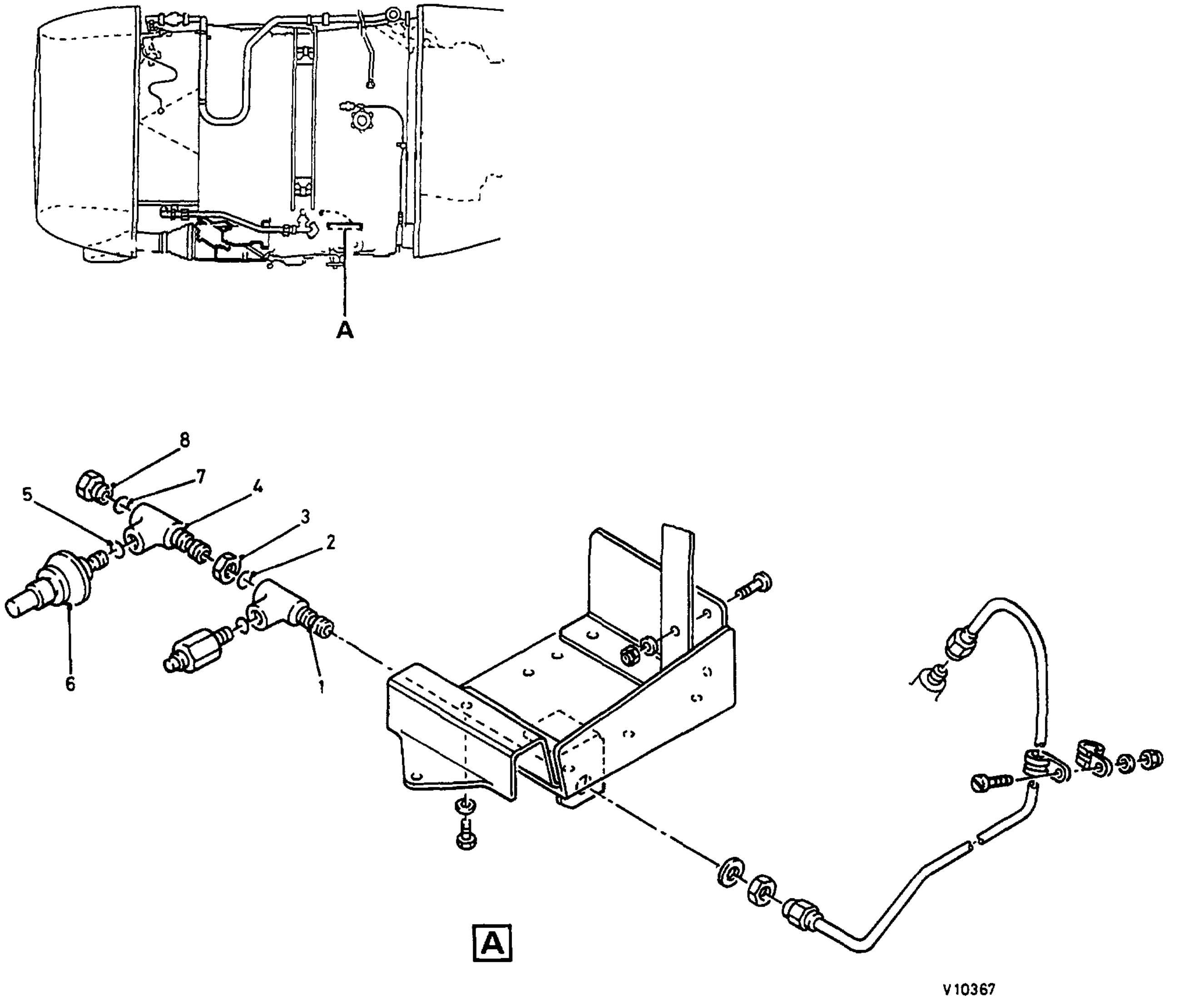
(2) Unscrew and remove oil pressure switch (6) from tee-piece fitting (4).

(3) Remove 'O' ring seal (5) from oil pressure switch (6) and discard. Put blanks on oil pressure switch (6).

(4) Remove blank (8) from tee-piece fitting (4), remove 'O' ring seal (7) from blank (8) and discard.

(5) Loosen lock-nut (3) and remove tee-piece fitting (4) from tee-piece fitting (1). Remove 'O' ring seal (2) from tee-piece fitting (4) and discard.

(6) Put blanks on tee-piece fitting (4).



Oil pressure switch removal
Figure 409

10. Remove oil pressure transmitter *(Figure 410)*

A. Procedure

(1) Disconnect electrical harness from oil pressure transmitter (17).

(2) Unscrew and remove oil pressure transmitter (17) from tee-piece fitting (9).

(3) Remove 'O' ring seal (18) from oil pressure transmitter (17) and discard. Put blanks on oil pressure transmitter (17).

(4) Remove screw (14), washer (15), nut (16) and clips (13) securing pipe assembly (12) to adjacent pipe.

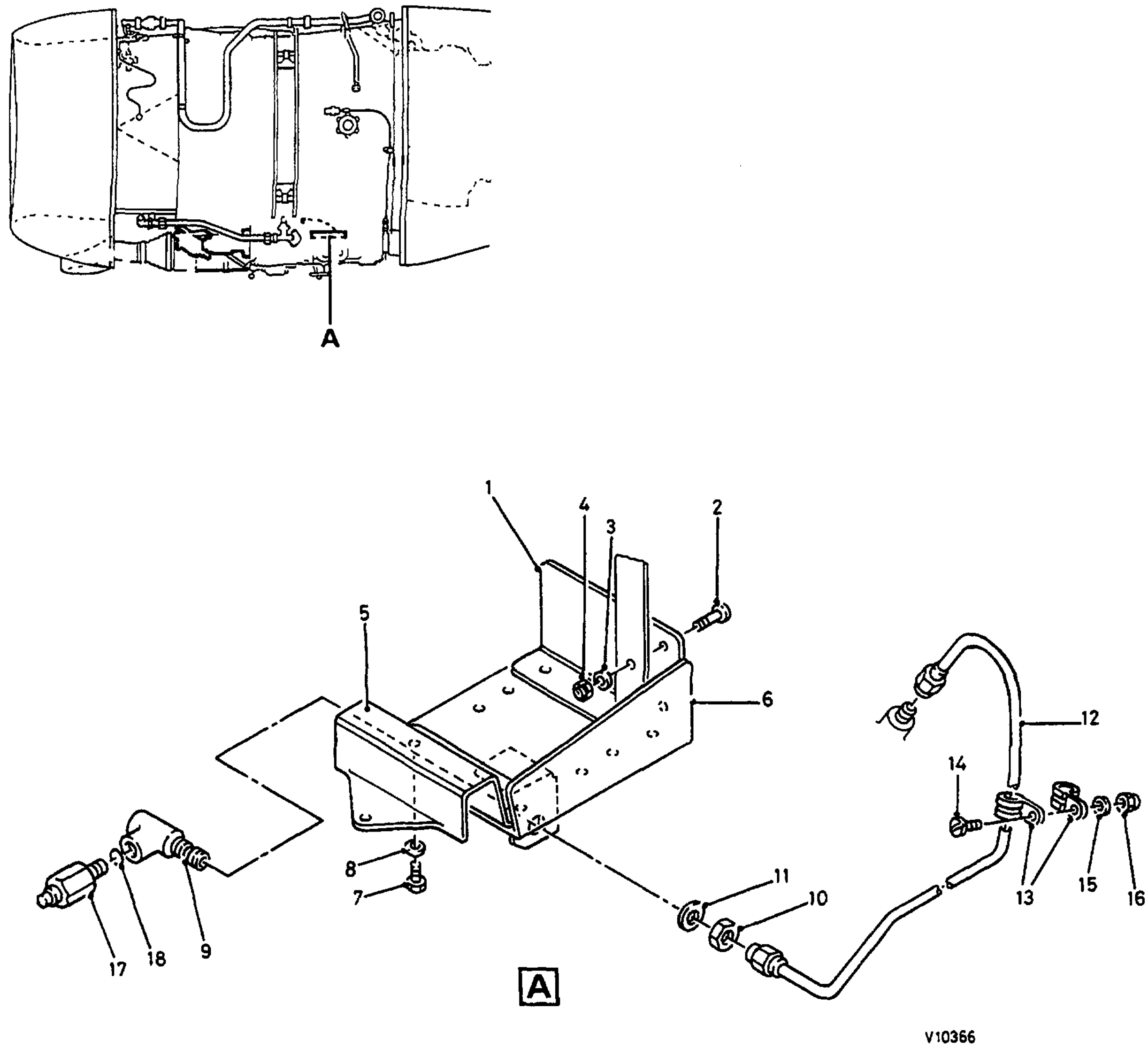
(5) Remove pipe (12) from tee-piece fitting (9) and engine aperture. Blank off pipe assembly (12).

(6) Unscrew locknut (10) and remove tee-piece fitting (9) along with washer (11). Blank tee-piece fitting (9).

(7) Remove attachment bolts (7) and washers (8) from bracket assembly (6).

(8) Remove bracket assemblies (6) and (5) from engine.

(9) Remove attachment screws (2), washers (3), nuts (4) and remove bracket assembly (1) from engine.



Oil pressure transmitter removal
Figure 410

11. Remove oil temperature bulb *(Figure 411)*

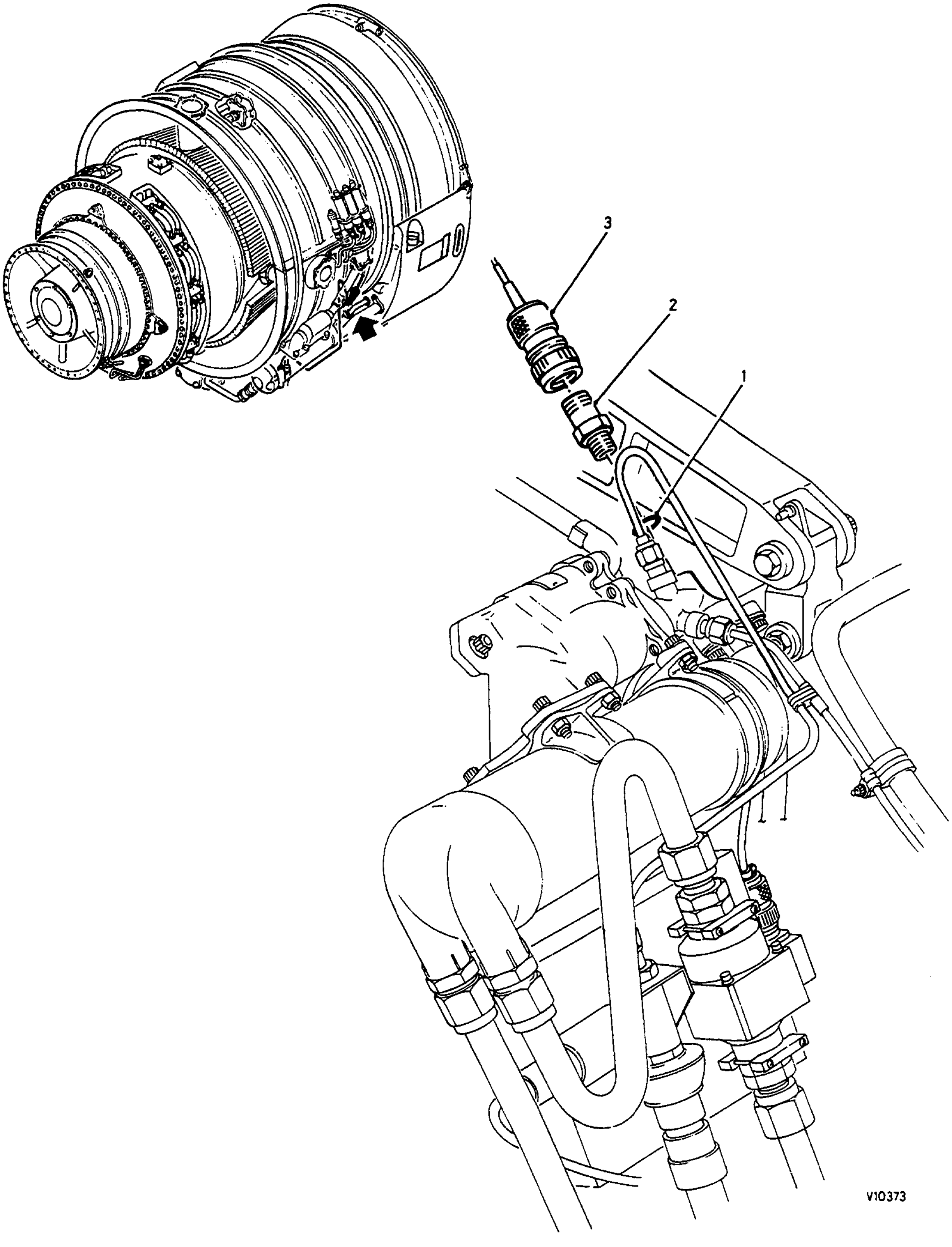
A. Procedure

(1) Disconnect electrical connector (3) from oil temperature bulb (2).

(2) Remove oil temperature bulb (2) from engine aperture.

(3) Remove ‘O’ ring seal (1) from oil temperature bulb (2) and discard.

(4) Put blanks on oil temperature bulb (2) and engine aperture.



Oil temperature bulb removal
Figure 411

12. Remove fuel pressure switch *(Figure 412)*

A. Procedure

(1) Disconnect electrical connection (8) from fuel pressure switch (7).

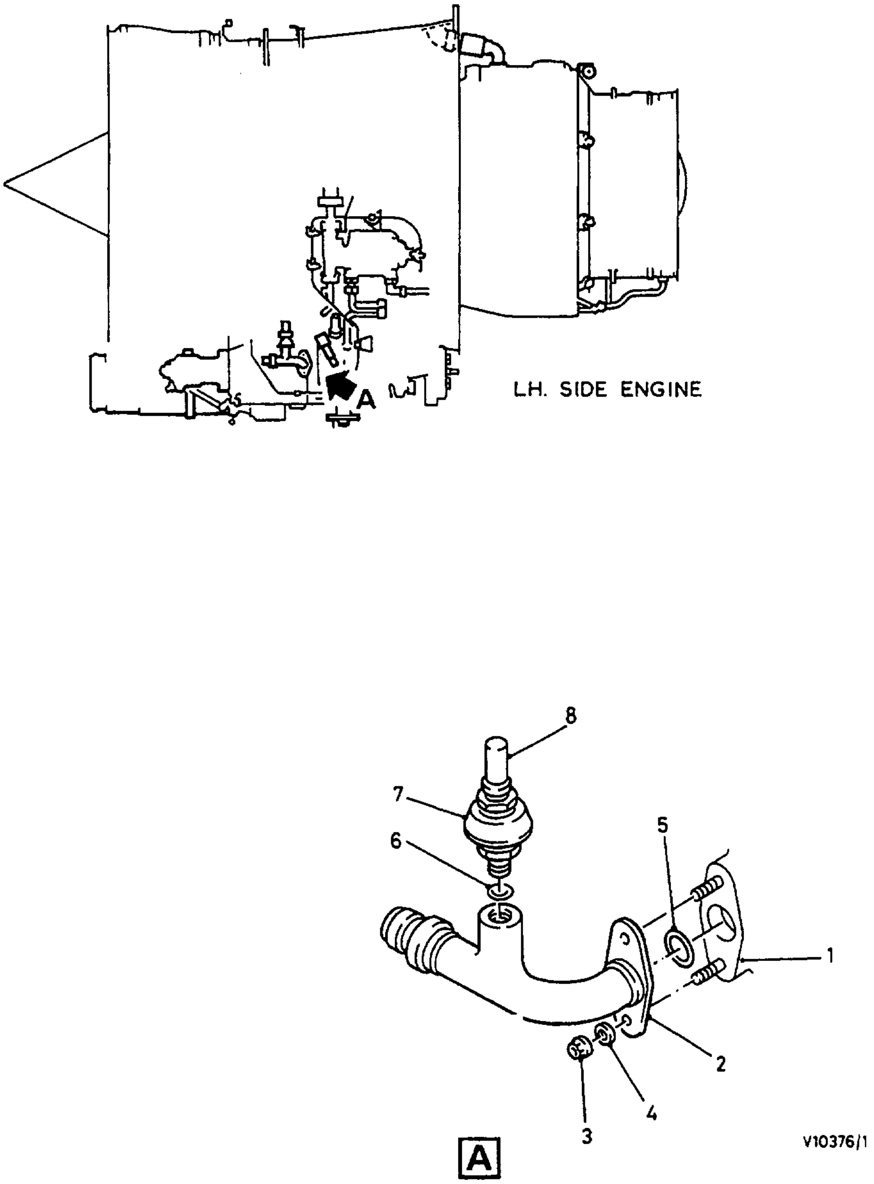
(2) Remove fuel pressure switch (7) from tube assembly (2).

(3) Remove 'O' ring seal (6) from fuel pressure switch (7) and discard. Put blanks on fuel pressure switch (7).

(4) Remove nuts (3) and washers (4) securing tube assembly (2) to engine casing (1).

(5) Remove tube assembly (2) from engine casing (1).

(6) Remove 'O' ring seal (5) from tube assembly and discard. Put blanks on tube assembly (2) and aperture on engine casing.



Fuel pressure switch removal
Figure 412

13. Remove fuel temperature switch *(Figure 413)*

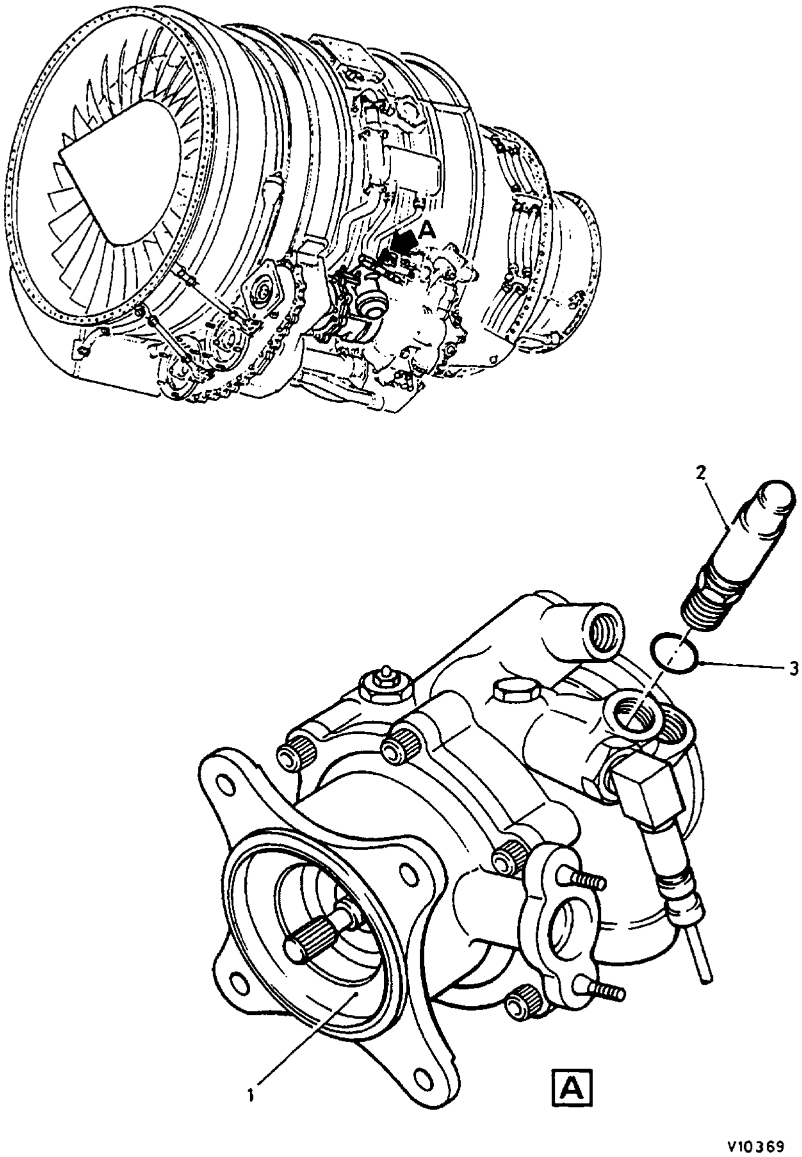
A. Procedure

(1) Disconnect electrical connector to fuel temperature switch (2).

(2) Remove fuel temperature switch (2) from fuel filter (1).

(3) Remove 'O' ring seal (3) from fuel temperature switch (2) and discard.

(4) Put blanks on fuel temperature switch (2) and aperture on fuel filter (1).



Fuel temperature switch removal
Figure 413

14. Remove HP line assembly *(Figure 414)*

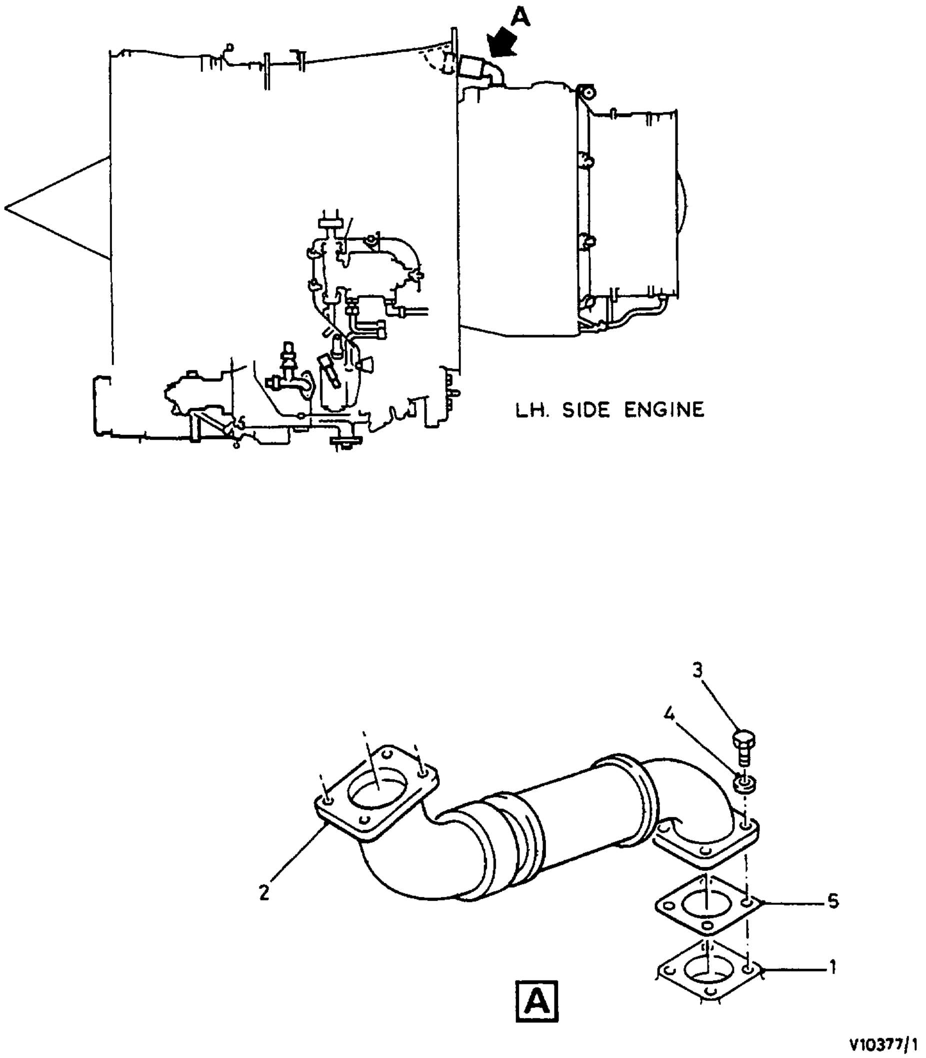
A. Procedure

(1) Remove bolts (3) and washers (4) from HP line assembly (2).

(2) Remove HP line assembly (2), with gasket (5), from engine casing (1). Discard gasket (5).

(3) Install a blank and gasket to high pressure air supply tapping on engine casing (1).

(4) Put blanks on HP line assembly.



HP line assembly removal
Figure 414

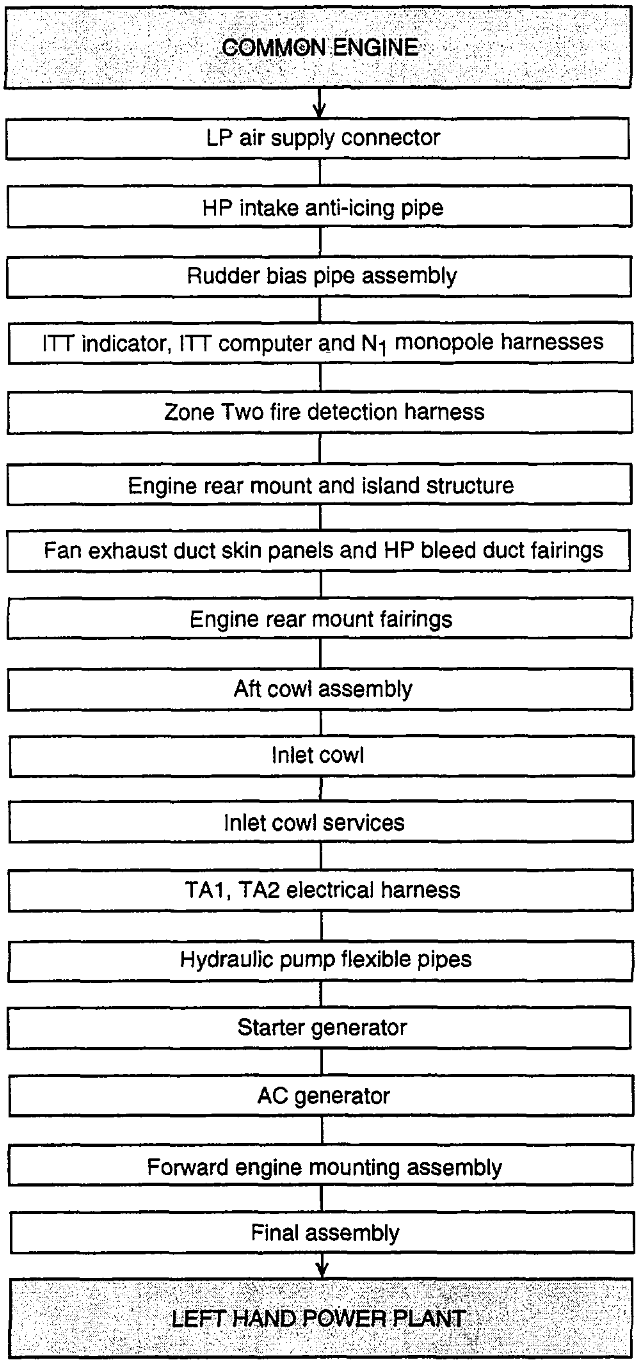
LEFT HAND POWER PLANT STANDARD

GENERAL DESCRIPTION

1. General

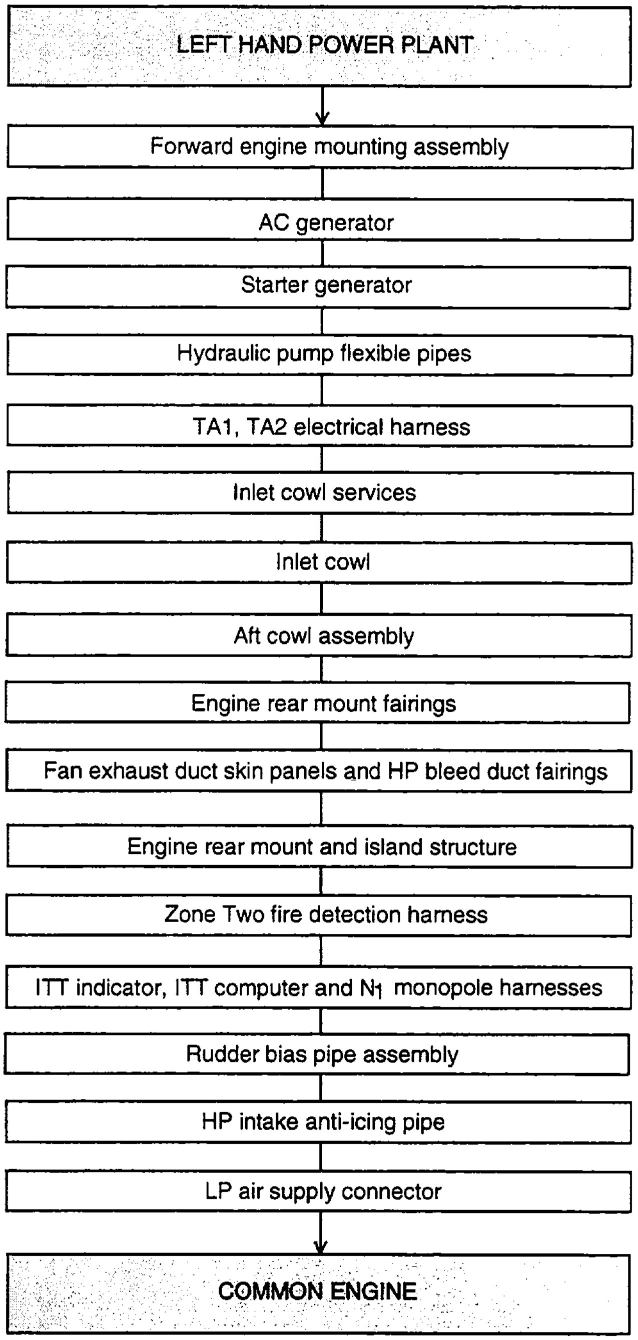
This section illustrates *(Figure 1)* and then details the procedures for building a 'common engine standard' engine to a standard for installation onto the left hand side of the aircraft and then illustrates *(Figure 2)* and details disassembly procedures back to the 'common engine standard'.

During installation of pipes and couplings, observe the torque loading procedures given in 71-00-03 unless otherwise stated in the text.


COMMON ENGINE
LP air supply connector
HP intake anti-icing pipe
Rudder bias pipe assembly
ITT indicator, ITT computer and N_1 monopole harnesses
Zone Two fire detection harness
Engine rear mount and island structure
Fan exhaust duct skin panels and HP bleed duct fairings
Engine rear mount fairings
Aft cowl assembly
Inlet cowl
Inlet cowl services
TA1, TA2 electrical harness
Hydraulic pump flexible pipes
Starter generator
AC generator
Forward engine mounting assembly
Final assembly
LEFT HAND POWER PLANT

M5455
HA00B995270AA

Power plant build to left hand standard
Figure 1


LEFT HAND POWER PLANT
Forward engine mounting assembly
AC generator
Starter generator
Hydraulic pump flexible pipes
TA1, TA2 electrical harness
Inlet cowl services
Inlet cowl
Aft cowl assembly
Engine rear mount fairings
Fan exhaust duct skin panels and HP bleed duct fairings
Engine rear mount and island structure
Zone Two fire detection harness
ITT indicator, ITT computer and N_1 monopole harnesses
Rudder bias pipe assembly
HP intake anti-icing pipe
LP air supply connector
COMMON ENGINE

M5456
HA00B995271AA

Left hand power plant disassembly back to common standard
Figure 2

LEFT HAND POWER PLANT STANDARD

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BUILD UP TO LEFT HAND POWER PLANT STANDARD

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AC generator 433
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Final assembly 437

1. Install LP air supply connector *(Figure 401)*

NOTE: Refer to the Illustrated Parts Catalogue (IPC) for the part numbers of components listed in these procedures.

A. Parts List

Item No.	Component	Units per assembly
1	Low pressure air supply tapping	Reference only
2	Gasket	1
3	Bolt	6
4	Connector assembly	1

B. Procedure

(1) Remove the six bolts securing the blanking plate to the low pressure air supply tapping (1) on the right side of the engine.

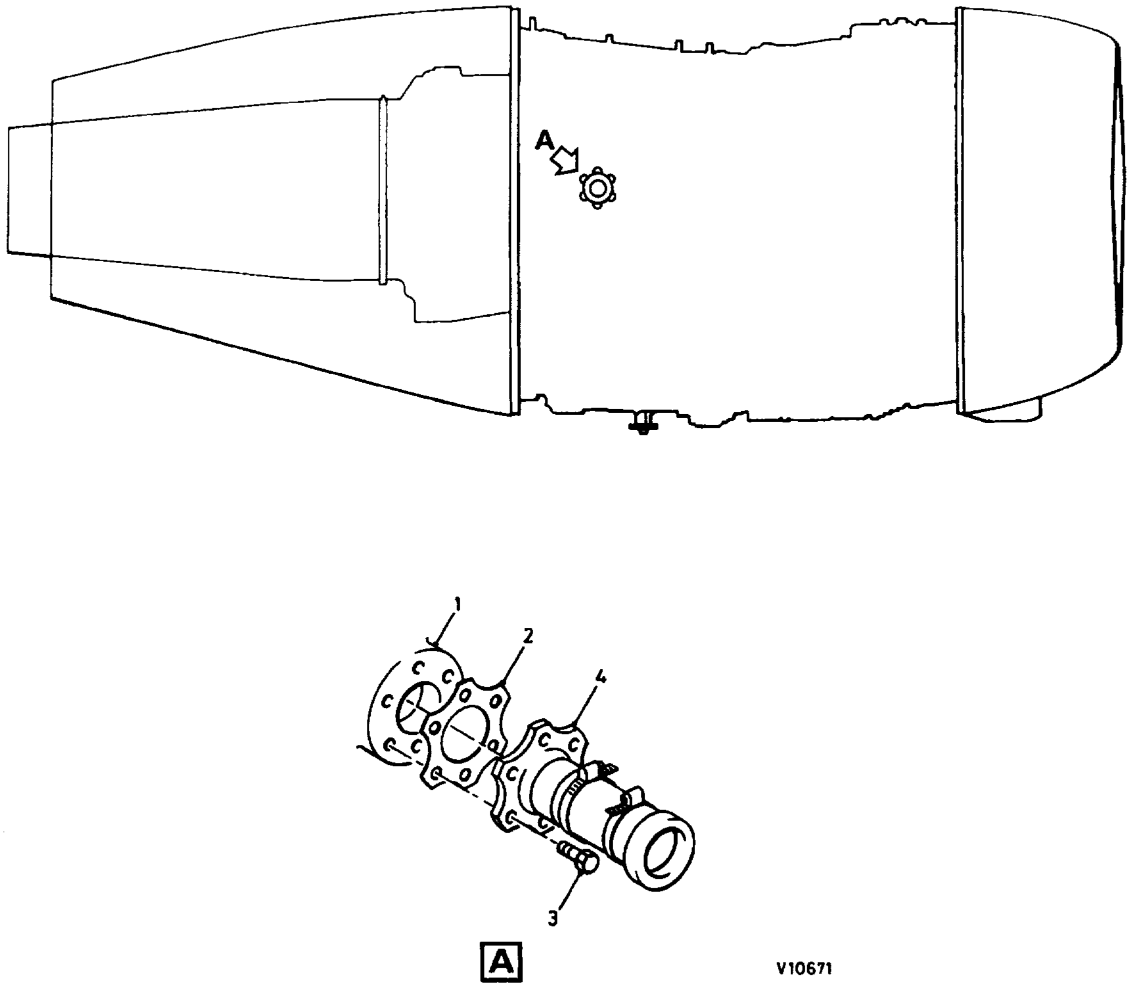
(2) Remove blanking plate and gasket, discard gasket.

(3) Install new gasket (2), coated with jointing compound (Item 310) (CONSUMABLE MATERIALS) to tapping.

(4) Secure low pressure connector assembly (4) with six attachment bolts (3).

(5) Tighten the bolts (3) to a torque of 30 to 35 lbf.in. (3.39 to 3.95 Nm).

(6) Safety the attachment bolts (3) with lockwire.



LP air supply connector installation
Figure 401

2. Install HP intake anti-icing pipe *(Figure 402)*

A. Parts List

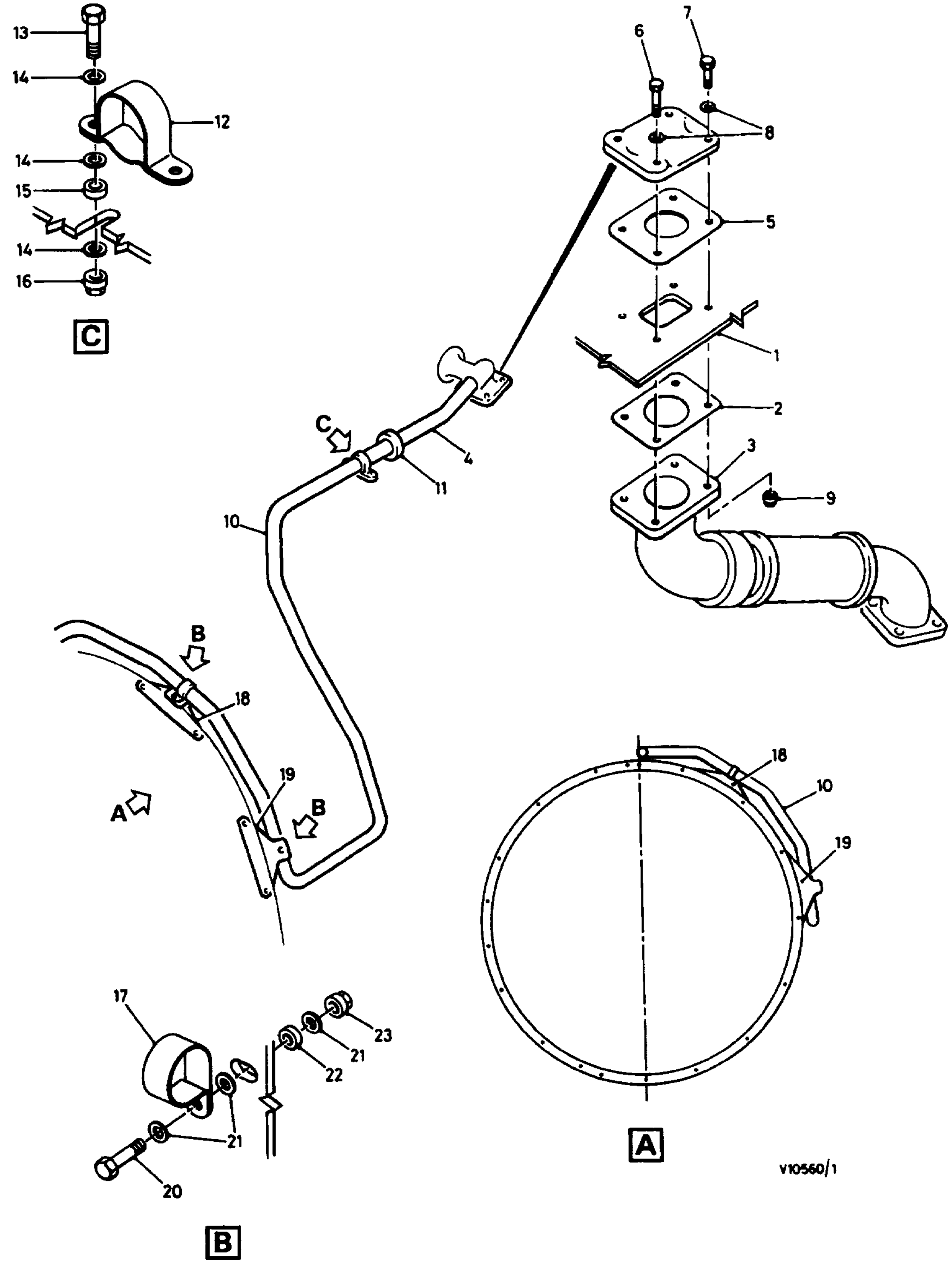
Item No.	Component	Units per assembly
1	Engine casing	Reference only
2	Gasket	1
3	HP line assembly	Reference only
4	Tube assembly	1
5	Gasket	1
6	Bolt	2
7	Bolt	2
8	Washer	4
9	Nut	2
10	Tube assembly	1
11	Clamp	1
12	Clamp	1
13	Bolt	2
14	Washer	6
15	Tube-distance	2
16	Nut	2
17	Clip	2
18	Bracket	1
19	Bracket	1
20	Bolt	2
21	Washer	6
22	Tube-distance	2
23	Nut	2

B. Procedure

(1) Install new gasket (2) between HP line assembly (3) and engine casing (1).

(2) Assemble tube assembly (4) with gasket (5), bolts (6), (7), washers (8) and nuts (9).

NOTE: Make sure coupling nut on HP line assembly is loose while tightening forward elbow flange. Hold forward elbow to prevent loads being transmitted to engine casing.



HP intake anti-icing pipe installation

Figure 402

(3) Tighten the bolts (6), (7), to a torque of 30 to 35 lbf.in. (3.39 to 3.95 Nm).

(4) Tighten the coupling nut on HP line assembly (3) to a torque of 500 to 700 lbf.in. (56.5 to 79.1 Nm) and safety with lockwire.

(5) Loosely assemble tube assembly (10) with clamp (11) onto tube assembly (4).

(6) Install clamp (12) and secure with bolts (13), washers (14), distance tubes (15) and nuts (16).

(7) Assemble clips (17) onto tube assembly (10) and brackets (18), (19) with bolts (20), washers (21), distance tubes (22) and nuts (23).

(8) Position brackets (18), (19) to position shown in *View A*.

(9) Tighten nuts (23) and bolts (20) to secure clips (17) onto brackets (18), (19).

(10) Tighten the clamp (11) to a torque of 35 to 45 lbf.in. (3.95 to 5.08 Nm).

3. Install rudder bias pipe assembly *(Figure 403)*

A. Parts List

Item No.	Component	Units per assembly
1	Gasket	1
2	Gasket	1
3	Tube assembly	1
4	Bolt	6
5	Washer	6
6	Adaptor	1
7	Tube assembly	1
8	Bracket	2
9	Bolt	4
10	Washer	4
11	Nut	4
12	Clip	2
13	Bolt	2
14	Washer	6
15	Distance tube	2
16	Nut	2

B. Procedure

(1) Remove the six bolts securing the blanking plate to the low pressure air supply tapping on left side of the engine.

(2) Remove blanking plate and discard gasket.

(3) Install new gaskets (1), (2), coated with jointing compound (Item 310) (CONSUMABLE MATERIALS) to low pressure air supply tapping.

(4) Secure tube assembly (3) to tapping with bolts (4) and washers (5).

(5) Tighten the bolts (4) to a torque of 30 to 35 lbf.in. (3.39 to 3.95 Nm).

(6) Safety the bolts (4) with lockwire.

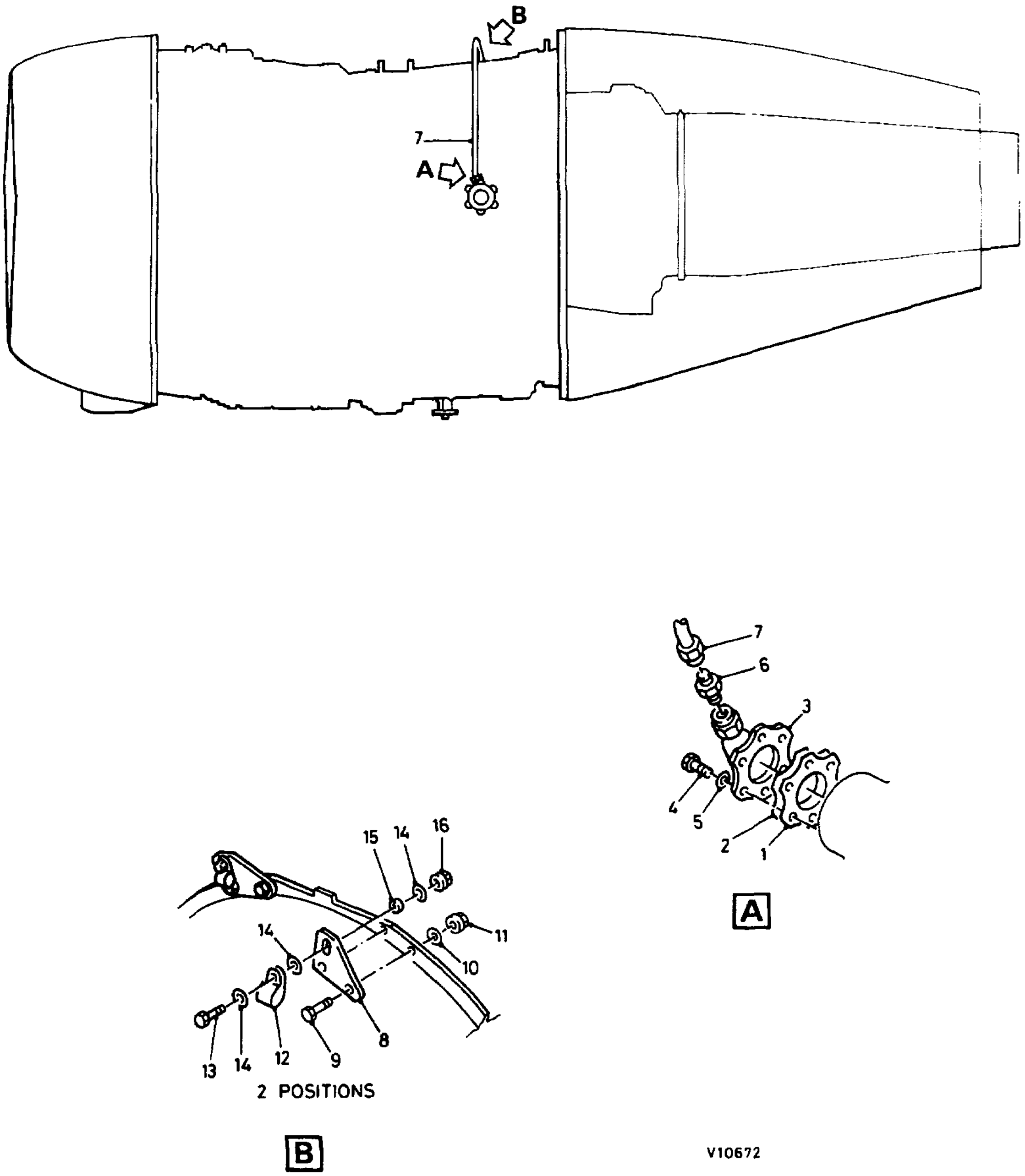
(7) Attach adaptor (6) to tube assembly (3) and safety with lockwire.

(8) Loosely assemble tube assembly (7) to adaptor (6).

(9) Install brackets (8) to engine casing flange and secure with bolts (9), washers (10) and nuts (11).

(10) Install clips (12) to pipe assembly (7) and secure to brackets (8) with bolts (13), washers (14), distance tubes (15) and nuts (16).

(11) Tighten tube assembly (7) into adaptor (6) and safety with lockwire.



Rudder bias pipe assembly installation
Figure 403

4. Install ITT indicator, ITT computer and N_1 monopole harnesses *(Figure 404)*

A. Parts List

Item No.	Component	Units per assembly
1	Harness (ITT indicator)	Reference only
2	Harness (ITT computer)	Reference only
3	Harness (N_1 monopole)	Reference only
4	Nut	6
5	Bolt	4
6	P-clip	4
7	P-clip	4
8	Bolt	2
9	Cable tie	1

NOTE: For disassembly procedures from right hand installation to neutral standard refer to, DISASSEMBLE FROM RIGHT HAND POWER PLANT STANDARD BACK TO COMMON ENGINE STANDARD.

(1) Position N_1 monopole harness (3), in two positions, into P-clip (7) and secure to existing mounting bracket with bolt (5) and nut (4). Tighten the nut to a torque of 60 lbf.in. (6.78 Nm). Refer to *View E*.

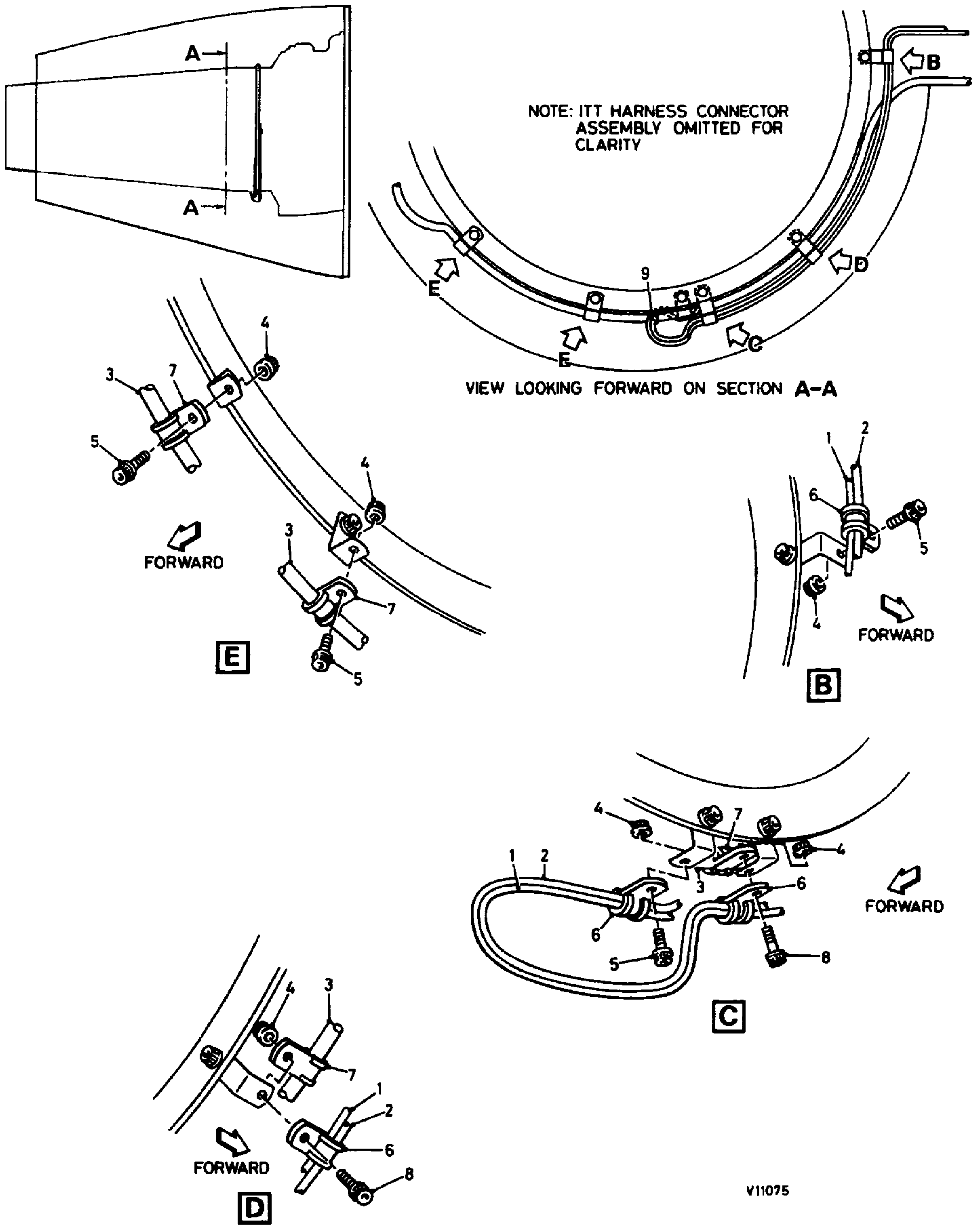
(2) Position ITT indicator and computer harnesses (1, 2) into P-clip (6) and secure to existing mounting bracket with bolt (5) and nut (4). Tighten the nut to a torque of 60 lbf.in. (6.78 Nm). Refer to *View C*.

(3) Position N_1 monopole (3), ITT indicator and computer harnesses (1, 2) harnesses in P-clips (7) and (6) and secure to existing mounting bracket with bolt (8) and nut (4). Tighten the nut to a torque of 60 lbf.in. (6.78 Nm). Refer to *View C*.

(4) Position N_1 monopole (3), ITT indicator and computer (1, 2) harnesses in P-clips (7) and (6) and secure to existing bracket with bolt (8) and nut (4). Tighten the nut to a torque of 60 lbf.in. (6.78 Nm). Refer to *View D*.

(5) Position ITT indicator and computer harnesses (1, 2) in P-clip (6) and secure to existing mounting bracket with bolt (5) and nut (4). Tighten the nut to a torque of 60 lbf.in. (6.78 Nm). Refer to *View B*.

(6) Secure ITT indicator and computer harnesses to N_1 monopole harness using cable tie (9).


A
A
NOTE: ITT HARNESS CONNECTOR ASSEMBLY OMITTED FOR CLARITY
B
D
C
E
E
9
VIEW LOOKING FORWARD ON SECTION A-A
4
3
7
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4
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FORWARD
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FORWARD
D
V11075

ITT indicator, ITT computer and N_1 monopole harnesses installation

Figure 404

5. Install Zone Two fire detection harness *(Figure 405)*

A. Parts List

Item No.	Component	Units per assembly
1	Connector assembly LM	1
2	Responder	Reference only
3	Support strip	1
4	Bolt	2
5	Nut	2
6	P-clip	2
7	Bolt	2
8	Washer	2
9	Nut	2
10	P-clip	1
11	Bolt	1
12	Washer	1
13	Nut	1
14	Cable tie	1

B. Procedure

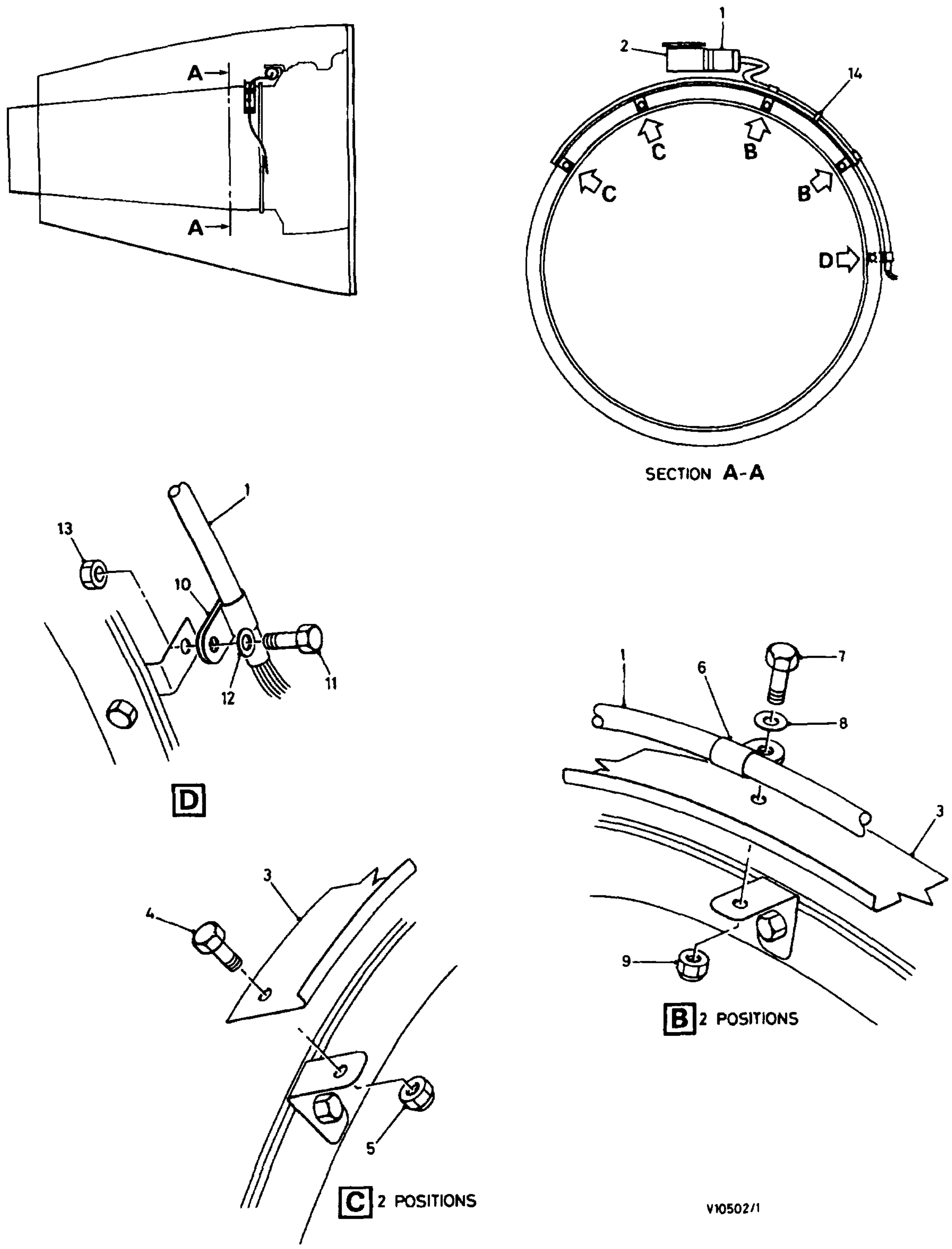
(1) Connect fire detection electrical harness connector (1) to responder (2) and safety with lockwire.

(2) Position support strip (3) onto existing engine mounted brackets and secure in two positions with bolts (4) and nuts (5).

(3) In two positions indicated, position fire detection harness (1) in P-clips (6), position P-clips (6) onto support strip (3) and secure to engine mounted brackets with bolts (7), washers (8) and nuts (9).

(4) Position fire detection harness (1) in P-clip (10) and secure to existing engine mounted bracket with bolt (11), washer (12) and nut (13).

(5) Secure fire detection harness (1) to support strip (3) with cable tie (14).



Zone Two fire detection harness installation
Figure 405

6. Install engine rear mount and island structure *(Figure 406)*

A. Parts List

Item No.	Component	Units per assembly
1	Island assembly	1
2	Engine aft cowl attachment flange	Reference only
3	Bolt	6
4	Washer	6
5	Nut	6
6	Mounting engine aft	1
7	Seal	2
8	Shield-fireproof	2
9	Shield-fireproof	1
10	Screw pan head	12
11	Washer	12
12	Nut	12
13	Engine rear attachment lug	Reference only
14	Strap bonding	1
15	Bolt	1
16	Washer	1
17	Washer	1
18	Nut	1
19	Split-pin	1

B. Procedure

(1) Position island structure (1) against engine aft cowl attachment flange (2) and thread ITT computer, ITT indicator, N_1 monopole and Zone Two fire detection harnesses through island structure (1).

(2) Secure island structure (1) to engine aft cowl attachment flange (2) with bolts (3), washers (4) and nuts (5).

(3) Tighten the bolts (3) to a torque of 30 to 35 lbf.in. (3.39 to 3.95 Nm).

(4) Position engine rear mounting (6), through island structure (1), into engine rear attachment lug (13).

(5) Apply anti-seize compound (Item 084) (CONSUMABLE MATERIALS) to engine rear attachment bolt (15).

(6) Position bonding strap (14) through island structure, insert attachment bolt (15) with washer (16) through bonding strap (14), rear engine attachment lug (13) and rear mounting (6).

(7) Install plain washer (17), slotted nut (18) and tighten to a torque of 60 to 80 lbf.in. (6.78 to 9.04 Nm). Make sure that one slot in the nut (18) aligns with the split pin hole in the bolt (15).

(8) Make sure that there is not less than 0.015 in. (0.30 mm) clearance between the threaded end of the bolt and engine casing. Should the clearance not be achieved install an additional plain washer (16) under the bolt head (15).

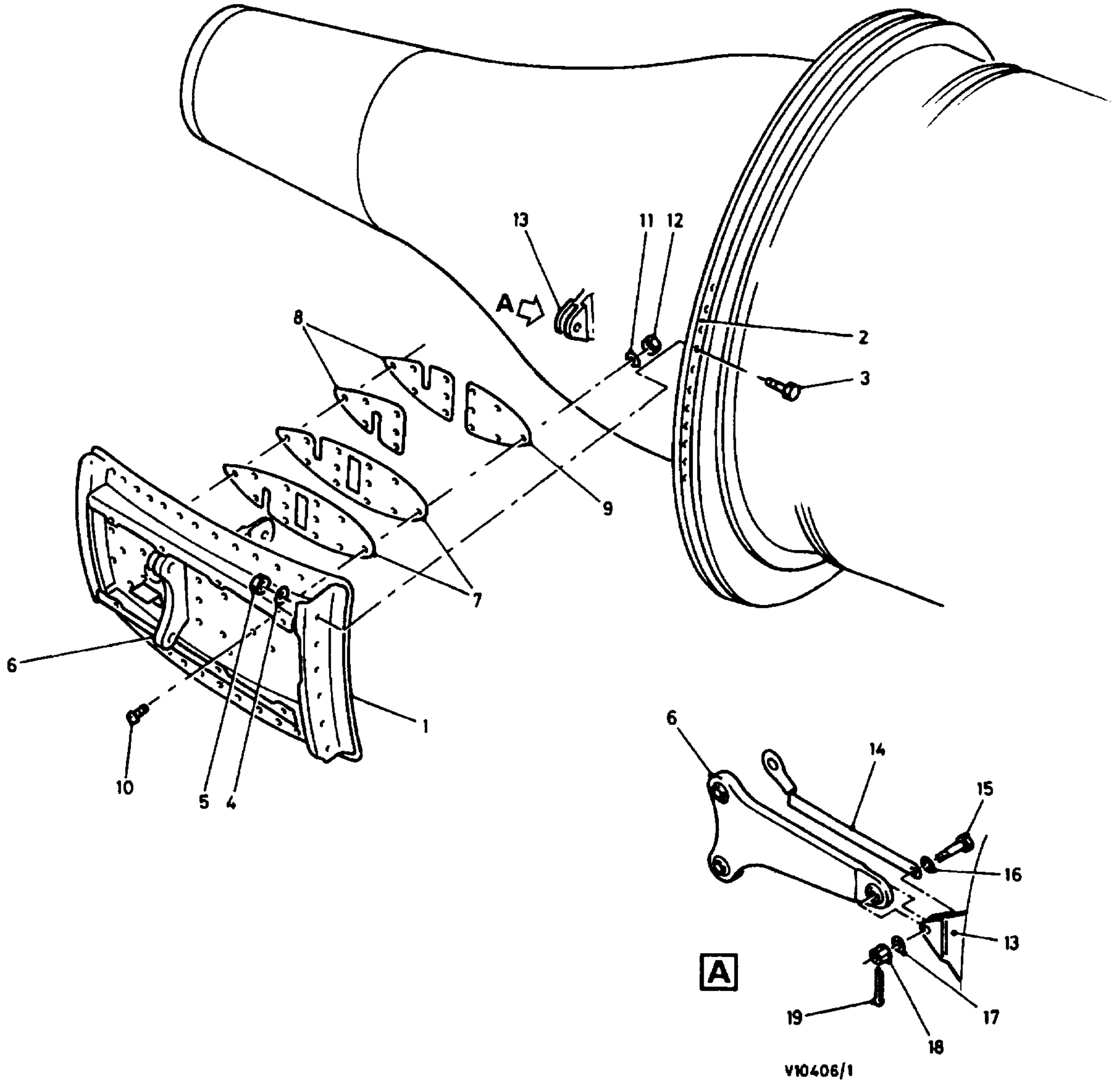
(9) Install a new split pin (19) through slotted nut (18) and attachment bolt (15) and secure.

(10) Position seals (7), fireproof heat shields (8), (9) and cable gaiter (supplied with island assembly) on the island structure (1) making sure that the slits in the fireproof heat shields (7), (8) face in alternate directions.

NOTE: Make sure that there is a minimum gap of 0.10 in. (2.54 mm) between the engine mounting fitting (6), the electrical cable harnesses and adjacent metal parts.

(11) Secure the seal assembly in position with bolts (10), washers (11) and nuts (12).

(12) Seal all gaps with sealing compound (Item 373) (CONSUMABLE MATERIALS).



Engine rear mount and island structure installation
Figure 406

7. Install fan exhaust duct skin panels and HP bleed duct fairings *(Figure 407)*

A. Parts List

Item No.	Component	Units per assembly
1	Skin inner lower	1
2	Screw pan head	17
3	Washer	17
4	Skin inner upper	1
5	Screw pan head	20
6	Washer	20
7	Stud	8
8	Washer	8
9	Fairing HP air bleed	1
10	Screw pan head	6
11	Washer	6
12	Fairing HP air bleed	1
13	Washer	2
14	Screw pan head	2
15	Screw pan head	6
16	Washer	6

B. Procedure

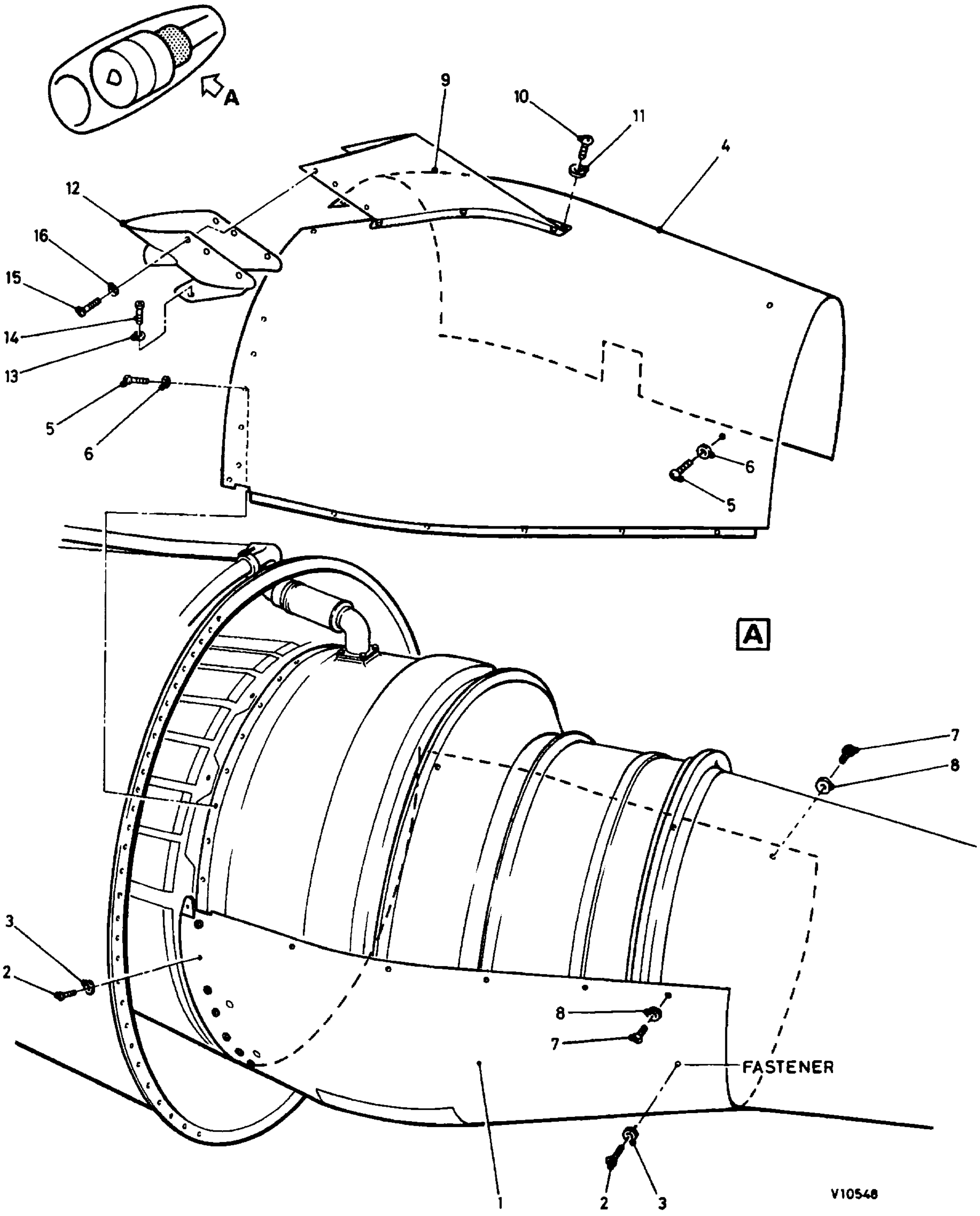
CAUTION: DO NOT FOUL THE FIRE DETECTION SYSTEM WHEN POSITIONING FAN EXHAUST DUCT INNER SKIN PANELS TO ENGINE.

(1) Position fan exhaust duct inner skin bottom panel (1) and loosely assemble to engine with screws (2) and washers (3).

(2) Position fan exhaust duct inner skin top panel (4) and loosely assemble to engine with screws (5) and washers (6).

(3) Secure the fan exhaust duct top (4) and bottom (1) inner skin panels with stud fasteners (7) and washers (8) along horizontal lap joint.

CAUTION: TIGHTEN ALL SCREWS ATTACHING FAN EXHAUST DUCT INNER SKIN PANELS PROGRESSIVELY IN SEQUENCE. THE TIGHTENING SEQUENCE SHOULD ONLY START WHEN ALL SCREWS ARE IN THE CORRECT POSITION.



Fan exhaust duct skin panels and HP bleed duct fairings installation
Figure 407

(4) Tighten screws (2), with washers (3), and secure fan exhaust duct inner skin bottom panel (1) to engine. Tighten screws (5), with washers (6), and secure fan exhaust duct inner skin top panel (4) to engine.

(5) Position and secure rear HP air bleed pipe fairing (9) with screws (10) and washers (11).

(6) Position and secure front HP air bleed pipe fairing (12) with screws (14) and washers (13).

(7) Secure front HP air bleed pipe fairing (12) to rear HP air bleed pipe fairing (9) with screws (15) and washers (16).

8. Install engine rear mount fairings *(Figure 408)*

A. Parts List

Item No.	Component	Units per assembly
1	Upper engine fan exhaust duct inner skin	Reference only
2	Lower engine fan exhaust duct inner skin	Reference only
3	Support fairing	1
4	Stud	6
5	Washer	16
6	Fairing engine lower mounting	1
7	Fairing engine lower mounting	1
8	Screw pan head	6
9	Washer	6
10	Stud	10
11	Island structure	Reference only
12	Rear engine mounting	Reference only

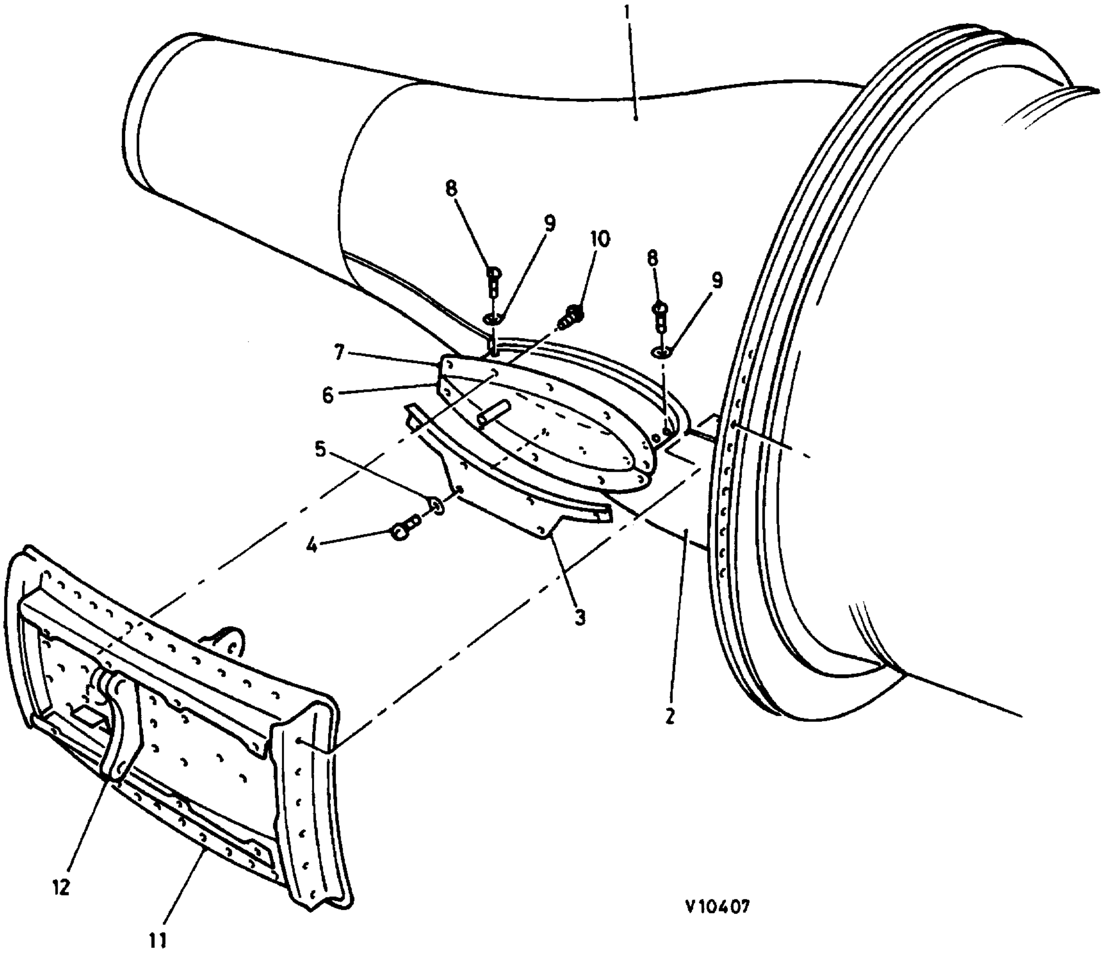
B. Procedure

(1) Position support fairing (3) on upper and lower engine fan exhaust duct inner skins (1) & (2), and secure with studs (4) and washers (5).

(2) Position lower engine mounting fairing (6) onto fairing support (3), and position upper engine mounting fairing (7) enclosing rear engine mounting (12) and electrical harnesses.

(3) Secure upper (7) and lower engine mounting fairings (6) with screws (8) and washers (9).

(4) Secure upper (7) and lower engine mounting fairings (6) to island structure (11) with studs (10).



Engine rear mount fairings installation
Figure 408

9. Install aft cowl assembly *(Figure 409)*

A. Parts List

Item No.	Component	Units per assembly
1	Engine fan duct rear flange	Reference only
2	Aft cowl assembly	1
3	Island structure	Reference only
4	Bolt	44
5	Washer	44
6	Nut	44
7	Stud	28
8	Aft cowl inner skin	Reference only
9	Bolt	2
10	Washer	2
11	Stud	7
12	Aft cowl inner skin rear angle	Reference only
13	Cover	1
14	Cover	1
15	Stud	20

B. Procedure

(1) Apply a thin coat of jointing compound (Item 310) (CONSUMABLE MATERIALS) to the engine fan duct rear flange (1) and aft cowl attachment flange.

(2) Position aft cowl assembly (2) over island structure (3) on to engine fan duct rear flange (1). Make sure that locating dowel is engaged.

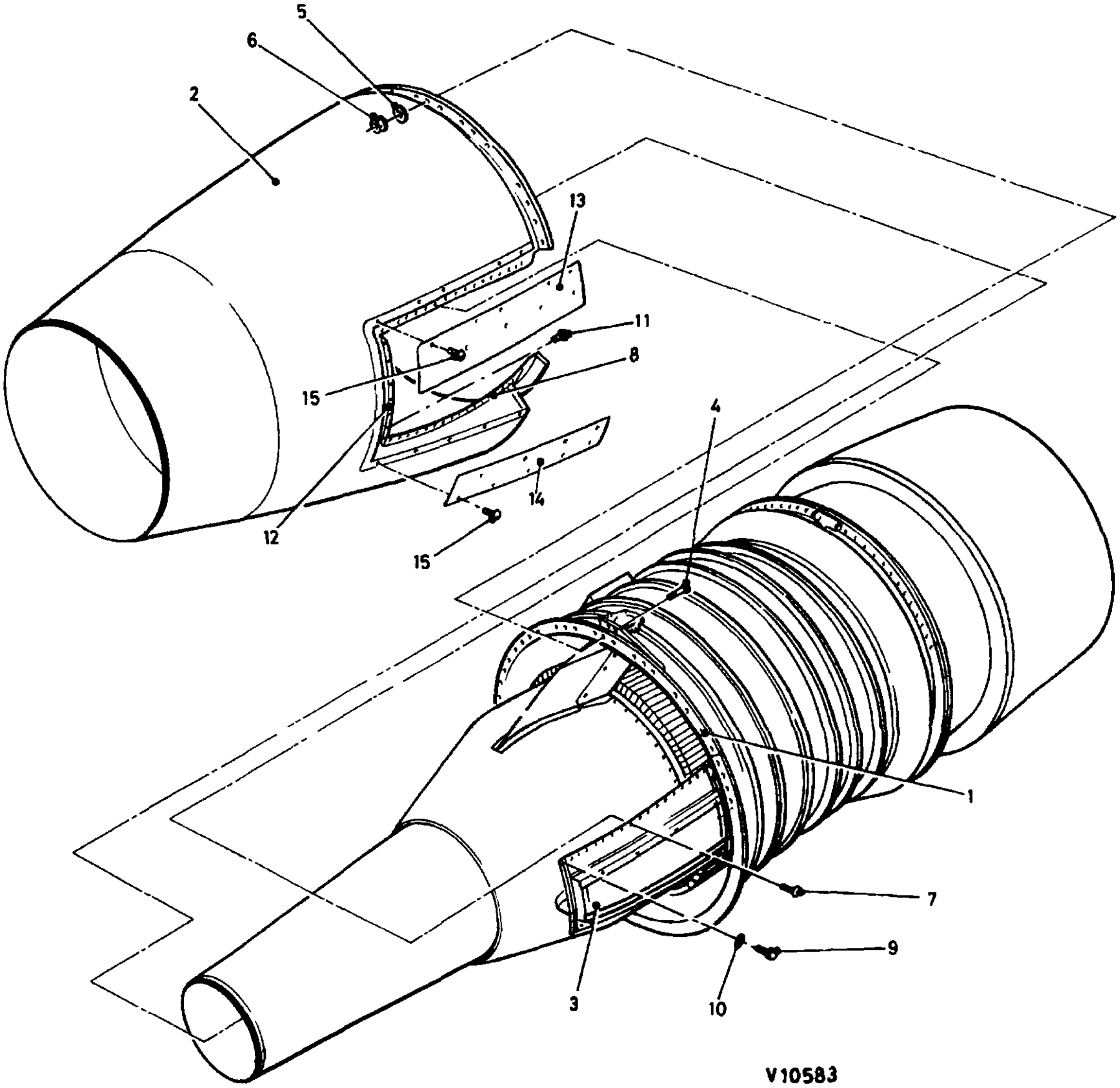
(3) Secure aft cowl assembly (2) to the fan duct rear flange (1) with bolts (4), washers (5) and nuts (6).

(4) Tighten the bolts (4) to torque between 30 to 35 lbf.in. (3.39 to 3.95 Nm).

(5) Secure island structure (3) to aft cowl inner skin (8) with quick release studs (7), bolts (9) and washers (10).

(6) Secure island assembly (3) to aft cowl inner skin rear angle (12) using quick release studs (11).

(7) Position and secure aft cowl upper (13) and lower (14) closing panels using quick release studs (15).



Aft cowl assembly installation
Figure 409

10. Install inlet cowl *(Figure 410)*

A. Parts List

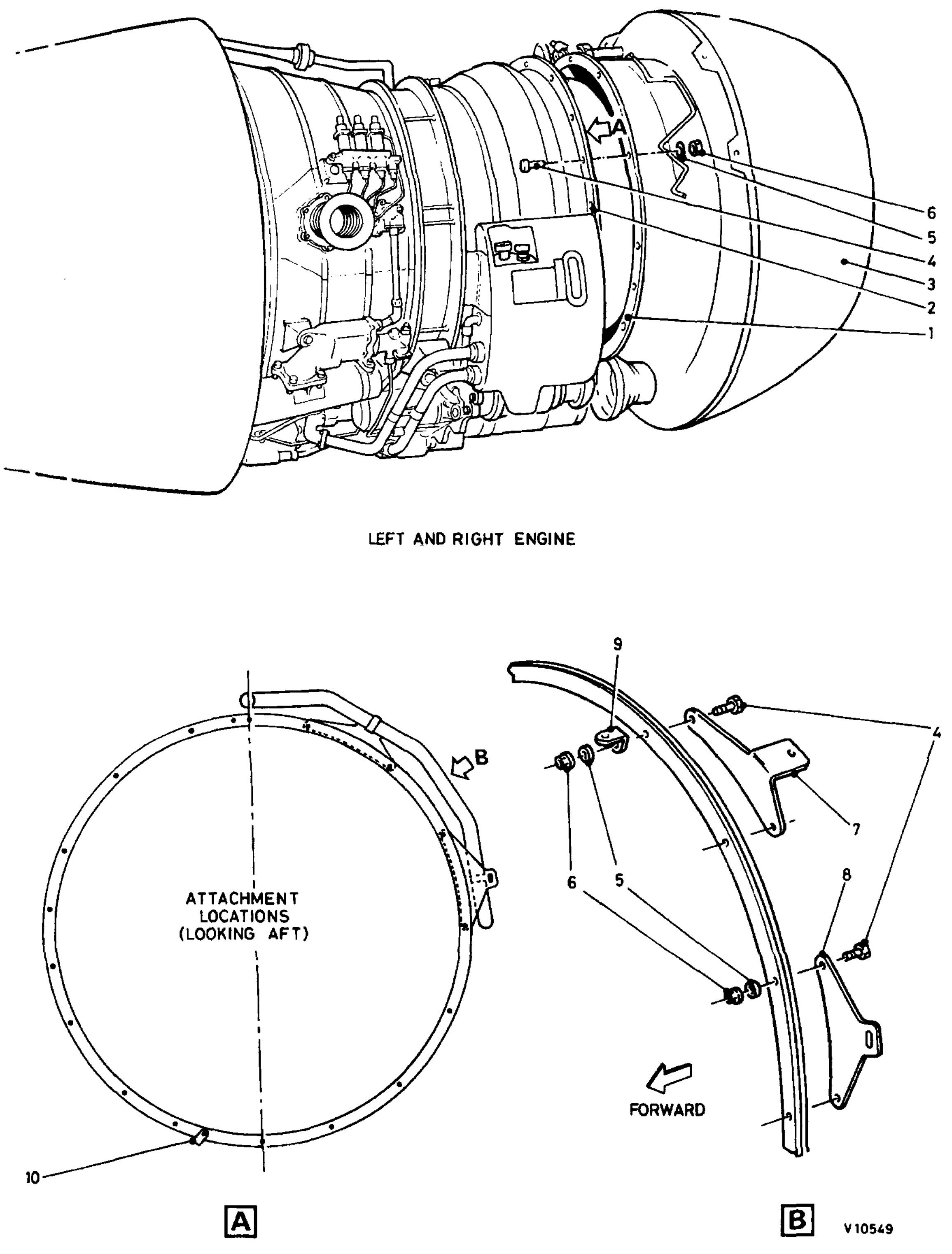
Item No.	Component	Units per assembly
1	Inlet cowl flange	Reference only
2	Cowl fan casing attachment flange	Reference only
3	Inlet cowl assembly	1
4	Bolt	18
5	Washer	18
6	Nut	18
7	HP anti-icing pipe mounting bracket	Reference only
8	HP anti-icing pipe mounting bracket	Reference only
9	Angle bracket	1
10	Starter/generator bonding strap	Reference only

B. Procedure

(1) Apply a thin coat of jointing compound (Item 310) (CONSUMABLE MATERIALS) to the engine inlet cowl flange (2) and the inlet cowl flange (1).

(2) Position inlet cowl assembly (3) on to cowl fan casing attachment flange (2) engaging dowel in locating hole.

(3) Secure inlet cowl assembly (3) to engine using bolts (4), washers (5) and nuts (6). Make certain HP anti-icing pipe mounting brackets, (7), (8), are located in positions show. Make sure angle bracket (9) is secured as shown and that starter/generator bonding strap (10) is assembled in position as shown in accordance with ELECTRICAL BONDING, Method 2.



Inlet cowl installation
Figure 410

11. Install inlet cowl services *(Figure 411)*

A. Parts List

Item No.	Component	Units per assembly
1	Clamp	1
2	Valve shut-off	1
3	Clamp	1
4	Pressure and temperature sensor	Reference only
5	Gasket	1
6	Bolt	2
7	Washer	2
8	Reducer	1
9	'O' ring	1
10	Tube assembly	1
11	Clip-P	3
12	Washer	3
13	Screw	3
14	Switch	1
15	Nut	1
16	Washer	1
17	Tube assembly	1
18	Inlet cowl anti-icing pipe	Reference only

B. Procedure

(1) Lubricate threads on 'V' clamp (1) with clean engine oil (Item 137) (CONSUMABLE MATERIALS). Put the anti-icing shut off valve (2) in position and secure to inlet cowl anti-icing pipe with 'V' clamp (1). Tighten the 'V' clamp nut (1) to a torque between 35 to 45 lbf. in. (3.95 to 5.08 Nm).

(2) Lubricate threads on 'V' clamp (3) with clean engine oil (Item 137) (CONSUMABLE MATERIALS). Install on HP intake anti-icing pipe from engine and inlet side of anti-icing shut off valve (2) Tighten the 'V' clamp nut (3) to a torque between 35 to 45 lbf. in. (3.95 to 5.08 Nm).

(3) Position Honeywell supplied pressure and temperature sensor (4) with gasket (5) and secure with bolts (6) and washers (7).

(4) Tighten the bolts to a torque of 20 to 30 lbf.in. (2.26 to 3.39 Nm) and safety with lockwire.

(5) Install new 'O' ring seal (9) to reducer (8) and install reducer (8) to pressure and temperature sensor (4).

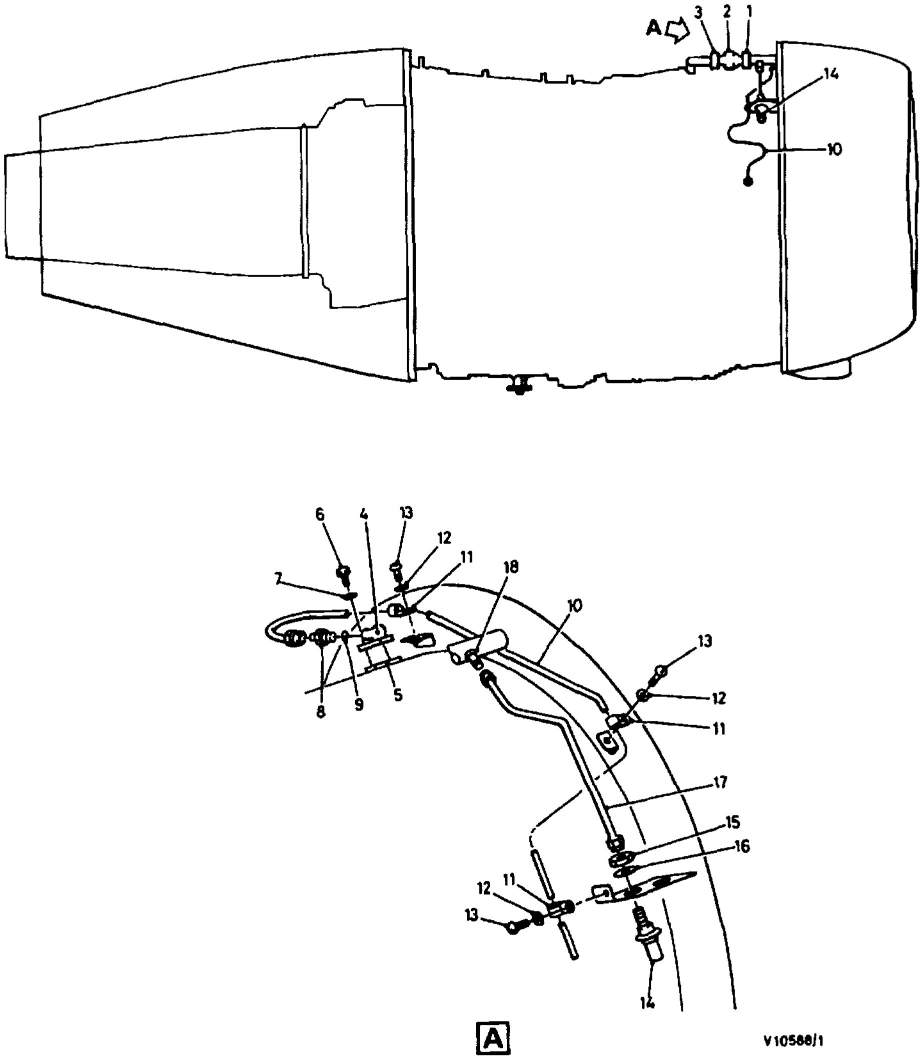
(6) Install tube assembly (10) to reducer (8) on pressure and temperature sensor (4).

(7) Secure tube assembly (10) with clips (11), washers (12) and screws (13).

(8) Position anti-icing pressure switch (14) into existing bracket on inlet cowl and secure with nut (15) and washer (16).

(9) Install tube assembly (17) from anti-icing pressure switch (14) to tapping on inlet cowl anti-icing pipe (18).

(10) Connect electrical connector P4 to the engine inlet pressure and temperature sensor (4).



Inlet cowl services installation
Figure 411

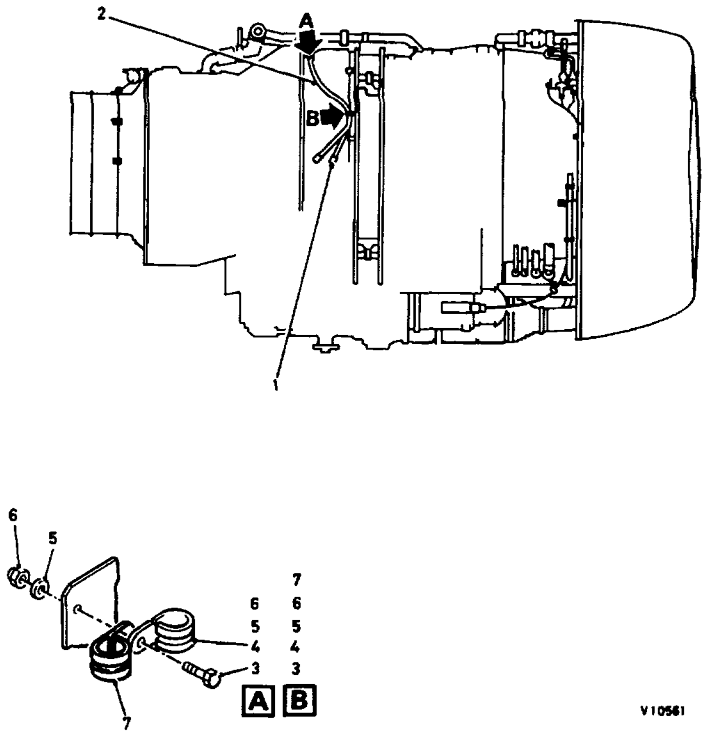
12. Install TA1, TA2 electrical harnesses *(Figure 412)*

A. Parts List

Item No.	Component	Units per assembly
1	Engine electrical harness TA1	1
2	Engine electrical harness TA2	1
3	Bolt	2
4	Clip	2
5	Washer	2
6	Nut	2
7	Clip	1

B. Procedure

(1) Secure engine electrical harnesses TA1 (1) and TA2 (2) to engine, from the vertical centre-line of the engine down to a point adjacent to the installed position of pylon plug breaks, with bolts (3), clips (4), washers (5), nuts (6) and clip (7).



TA1, TA2 electrical harnesses installation
Figure 412

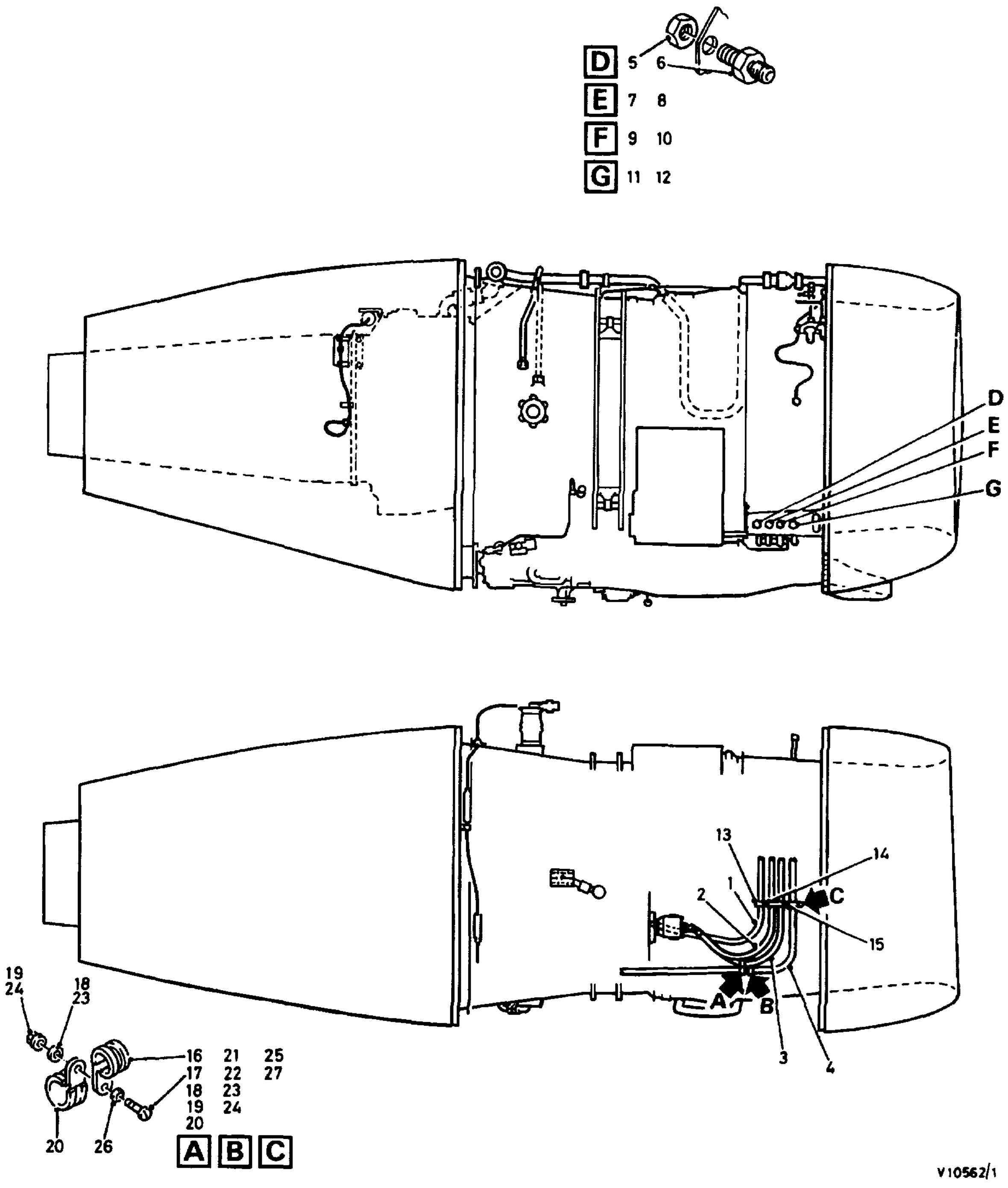
13. Install hydraulic pump flexible pipes *(Figure 413)*

A. Parts List

Item No.	Component	Units per assembly
1	Pipe	1
2	Pipe	1
3	Pipe	1
4	Tube assembly	1
5	Nut	1
6	Union	1
7	Nut	1
8	Union	1
9	Nut	1
10	Union	1
11	Nut	1
12	Union	1
13	Fairlead	2
14	Screw	2
15	Washer	2
16	Clip	1
17	Screw	1
18	Washer	1
19	Nut	1
20	Clip	1
21	Clip	1
22	Screw	1
23	Washer	1
24	Nut	1
25	Clip	1
26	Washer	1
27	Screw	1

B. Procedure

(1) Remove blanks from hydraulic pump and hydraulic pipes (1), (2) and (3).



Hydraulic pump flexible pipes installation
Figure 413

(2) Install hydraulic pipes (1), (2), (3), to hydraulic pump.

(3) Remove blanks from fuel pipe (4) and fuel pressure switch elbow pipe fitting.

(4) Install fuel pipe (4) to fuel pressure switch elbow pipe fitting.

(5) Install hydraulic unions (6), (8), (10), with nuts (5), (7), (9), to existing engine mounted bracket. Remove blanks from unions (6), (8), (10).

(6) Install fuel pipe union (12) with nut (11) to existing engine mounted bracket. Remove blanks from union (12).

(7) Install hydraulic pipes (1), (2), (3), to unions (6), (8), (10), on engine mounted bracket.

(8) Install fuel pipe (4) to union (12) on engine mounted bracket.

(9) Secure hydraulic pipes (1), (2), (3), with fairlead (13), screws (14) and washers (15) to existing engine mounted bracket.

(10) Secure hydraulic pipe (3) to fuel pipe (4) with clips (16), (20), screw (17), washer (18) and nut (19).

(11) Secure fuel pipe (4) to existing engine mounted bracket with clip (21), screw (22), washer (23) and nut (24).

(12) Secure fuel pipe (4) to existing engine mounted bracket with clip (25), washer (26) and screw (27).

14. Install starter/generator *(Figure 414)*

A. Parts List

Item No.	Component	Units per assembly
1	Clamp	1
2	QAD adaptor mounting flange	Reference only
3	Starter/generator	1
4	Duct	1
5	Clamp	1
6	Inlet cowl	Reference only
7	Clamp	1

B. Procedure

(1) Make sure that QAD adaptor mounting flange (2) and clamping surfaces are clean and free from damage.

CAUTION: DO NOT LUBRICATE DRIVE SHAFT SPLINES. ASSEMBLE DRY.

(2) Smear the inside mating faces of starter/generator V-clamp (1) with grease (Item 054) (CONSUMABLE MATERIALS) and locate V-clamp (1) on starter/generator (3).

CAUTION: KEEP STARTER/GENERATOR FLUSH AGAINST ADAPTOR DURING INSTALLATION, DO NOT PERMIT UNIT TO HANG LOOSELY, OR WITHOUT V-CLAMP BEING FULLY TIGHTENED. OTHERWISE UNDUE BENDING FORCE ON DRIVE SHAFT CAN RESULT IN DAMAGE AND IN-FLIGHT FAILURE.

(3) Supporting weight of starter/generator (3), position into engine accessory gearbox until fully engaged and flush up against QAD adaptor (2). Secure starter/generator (3) with V-clamp (1).

CAUTION: POSITION OF STARTER/GENERATOR V-CLAMP MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR.

(4) Tighten the 'V' clamp (1) nut to a torque between 70 to 90 lbf. in. (7.91 to 10.17 Nm).

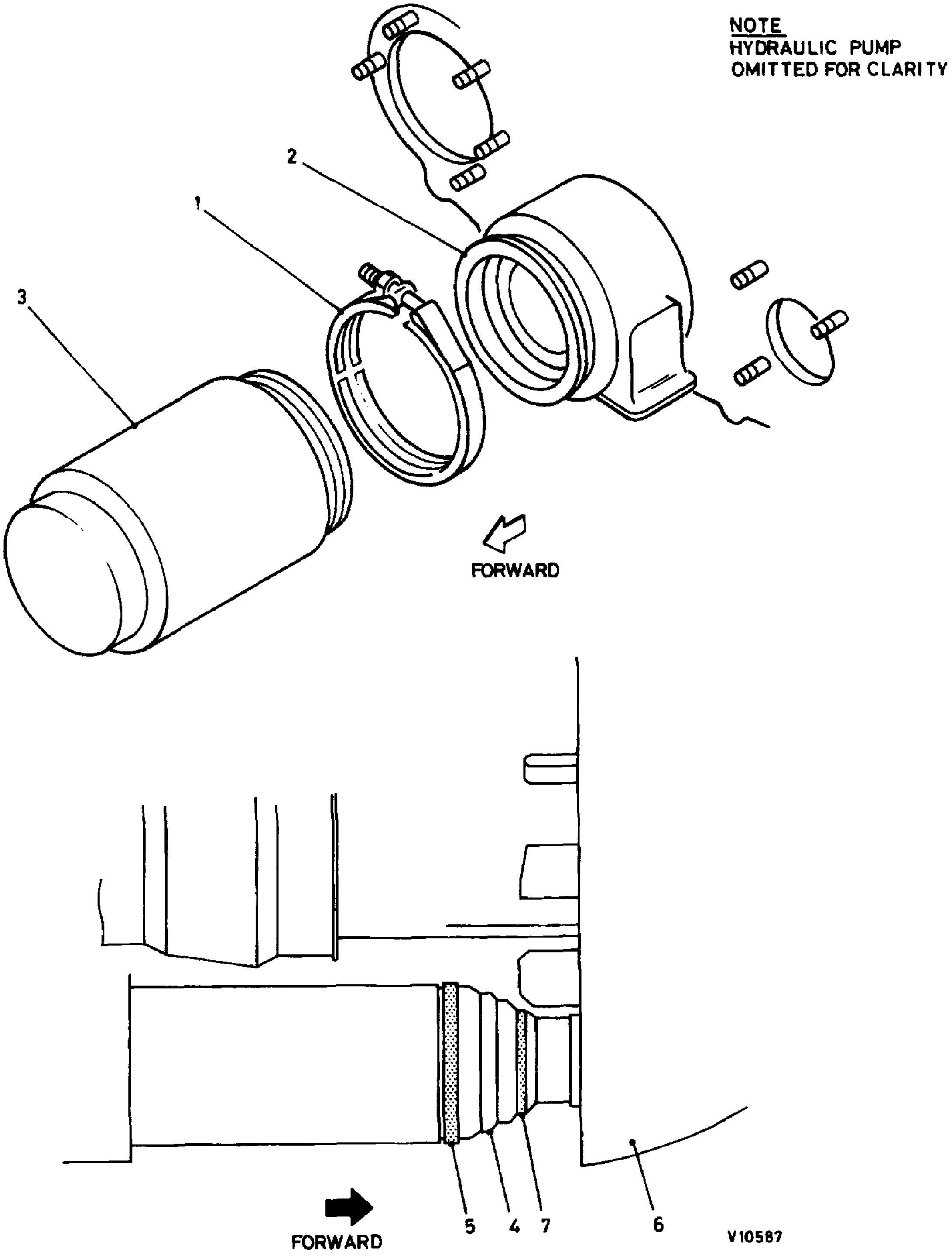
(5) Loosen V-clamp nut one half turn.

(6) Tighten the 'V' clamp (1) nut again to a torque between 70 to 90 lbf. in. (7.91 to 10.17 Nm).

(7) Repeat paragraphs (5) and (6) until nut ceases to advance.

CAUTION: POSITION OF FLEXIBLE COOLING AIR INLET DUCT CLAMPS MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR.

(8) Install starter/generator flexible cooling air inlet duct (4) and secure to starter/generator (3) with clamp (5), and secure to inlet cowl (6) with clamp (7).



Starter/generator installation
Figure 414

15. Install AC generator *(Figure 415)*

A. Parts List

Item No.	Component	Units per assembly
1	Clamp	1
2	AC generator adaptor mounting flange	Reference only
3	AC generator	1
4	Bonding strap	Reference only
5	Clamp	1
6	Inlet assembly	1

B. Procedure

(1) Make sure that AC generator adaptor mounting flange (2) and clamping surfaces are clean and free from damage.

CAUTION: DO NOT LUBRICATE DRIVE SHAFT SPLINES: ASSEMBLE DRY.

(2) Apply grease (Item 054) (CONSUMABLE MATERIALS) to the inside mating faces of AC generator 'V' clamp (1) and position the 'V' clamp on AC generator (3).

CAUTION: WITH LOCATING DOWEL ENGAGED, KEEP AC GENERATOR FLUSH UP AGAINST ADAPTOR DURING INSTALLATION AND DO NOT PERMIT UNIT TO HANG LOOSELY OR WITHOUT V-CLAMP BEING FULLY TIGHTENED. OTHERWISE UNDUE BENDING FORCE ON DRIVE SHAFT CAN RESULT IN DAMAGE AND IN-FLIGHT FAILURE.

(3) Supporting weight of AC generator (3), position into engine accessory gearbox until fully engaged and flush up against adaptor (2).

CAUTION: POSITION OF AC GENERATOR V-CLAMP MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR.

(4) Secure AC generator (3) with V-clamp (1).

(5) Tighten the 'V' clamp (1) nut to a torque between 70 to 90 lbf. in. (7.91 to 10.17 Nm).

(6) Loosen V-clamp nut one half turn.

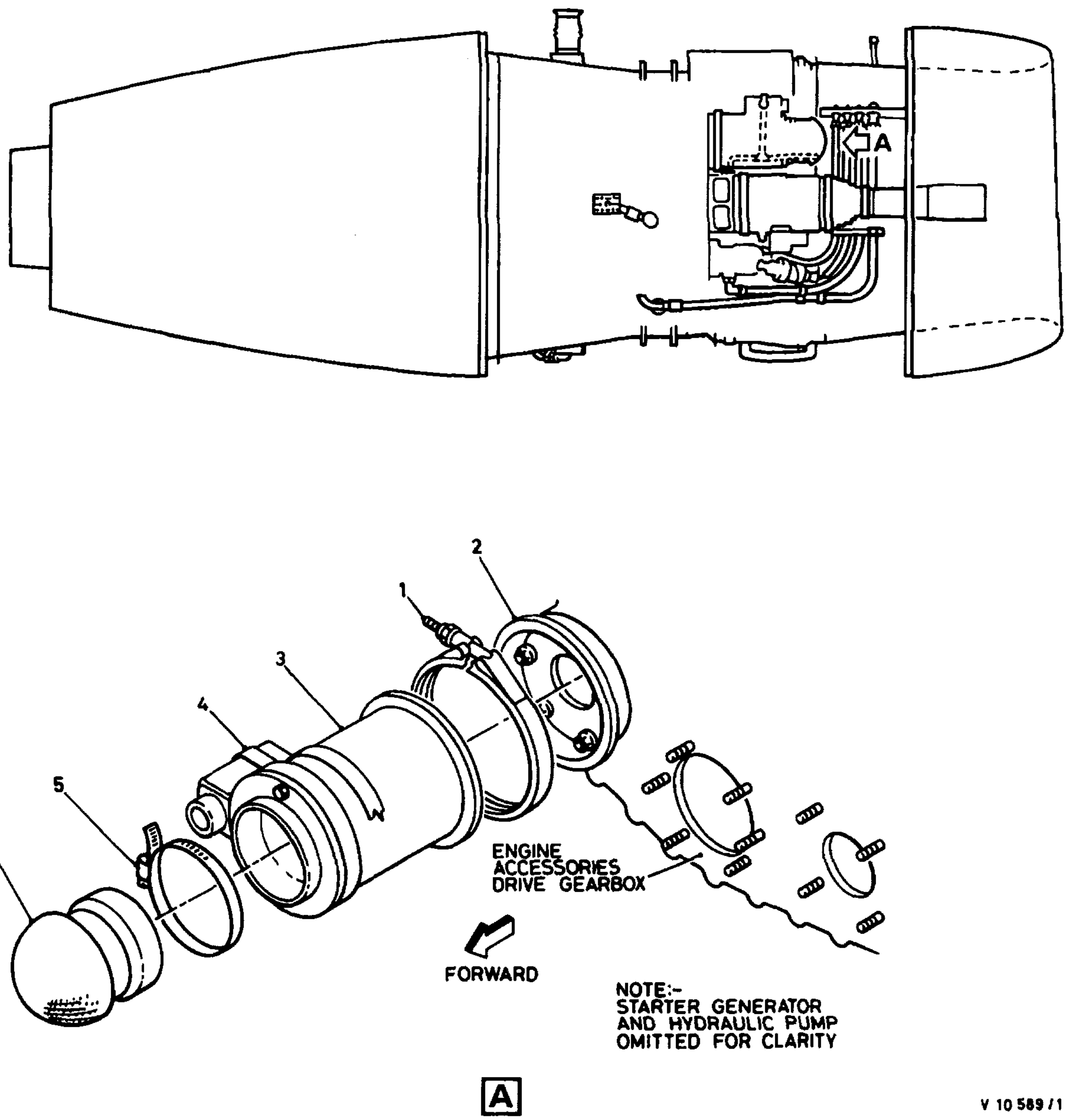
(7) Tighten the 'V' clamp (1) nut again to a torque between 70 to 90 lbf. in. (7.91 to 10.17 Nm).

(8) Repeat paragraphs (6) and (7), until nut ceases to advance.

(9) Connect and secure bonding strap (4) to AC generator earth stud, in accordance with ELECTRICAL BONDING, Method 22.

(10) Loosely assemble clamp (5) onto intake assembly (6) and position intake assembly (6) with clamp (5) onto AC generator (3) flange.

(11) Secure clamp (5), with intake assembly (6), to AC generator (3).



NOTE:-
STARTER GENERATOR AND HYDRAULIC PUMP OMITTED FOR CLARITY

AC generator installation
Figure 415

16. Install forward engine mounting assembly *(Figure 416)*

A. Parts List

Item No.	Component	Units per assembly
1	Mounting assembly	1
2	Mounting bolt	4

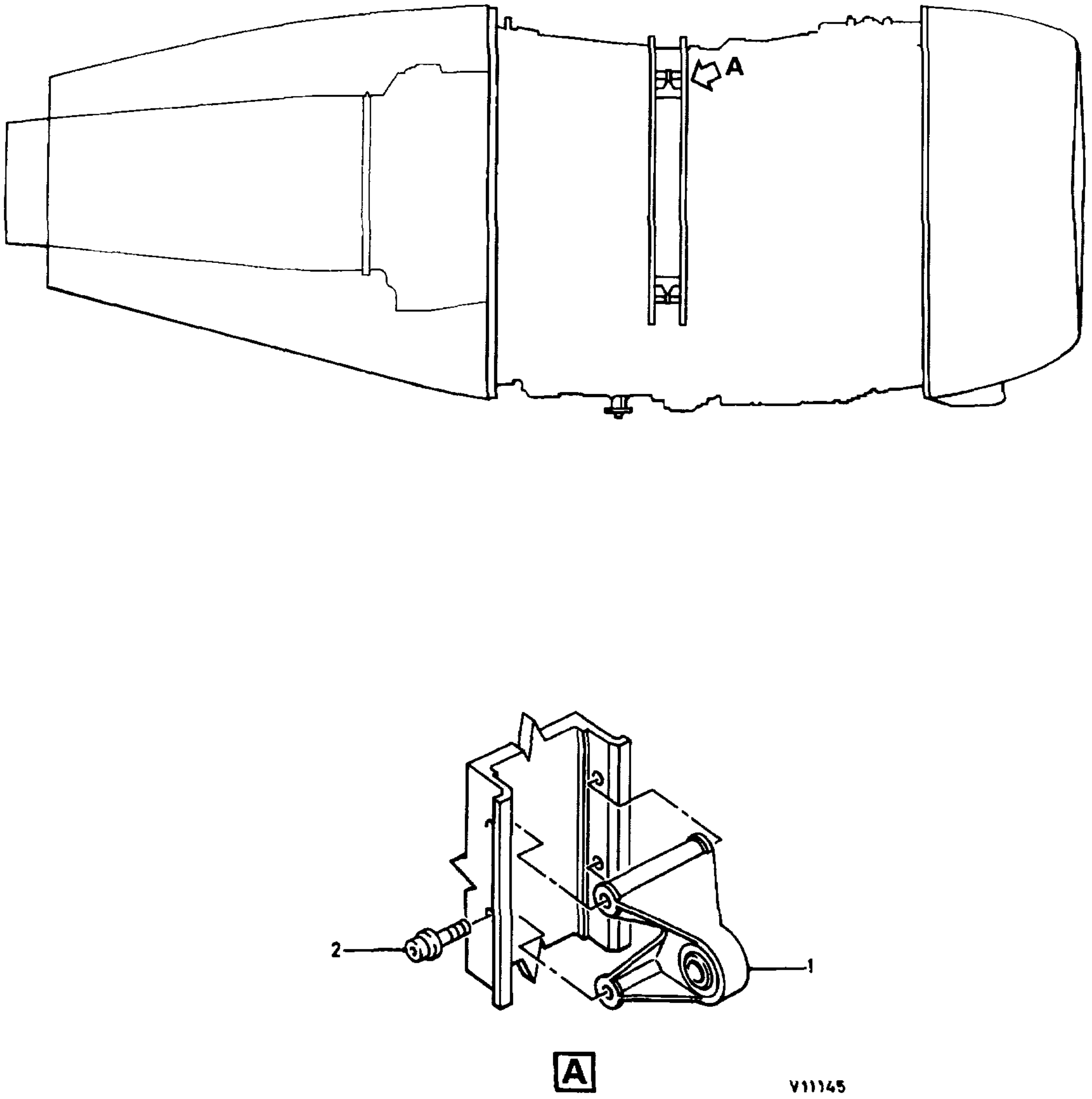
B. Procedure

NOTE: Honeywell supplied engines arrive with the lower forward engine mounting assembly, positioned on the right-hand side of the engine, already installed.

(1) Position top front mount attachment assembly (1) between engine flanges.

(2) Secure attachment assembly with four attachment bolts (2).

(3) Tighten attachment bolts (2) to a torque of 350 to 385 lbf.in. (39.55 to 43.50 Nm) and safety with lockwire.



Forward engine mounting assembly installation
Figure 416

17. Final assembly

A. On completion of build, perform the following:

(1) Make sure the working area is clean, and clear of tools and miscellaneous equipment.

(2) Examine the intake and exhaust tube area for loose articles and put on blanks.

(3) Put blanks on all pipe ends and protective caps to exposed electrical leads.

(4) Examine all build items for security of attachment, correct locking, and correct routing of pipes, ducts and cables.

LEFT HAND POWER PLANT STANDARD

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DISASSEMBLE FROM LEFT HAND POWER PLANT STANDARD BACK TO COMMON ENGINE STANDARD

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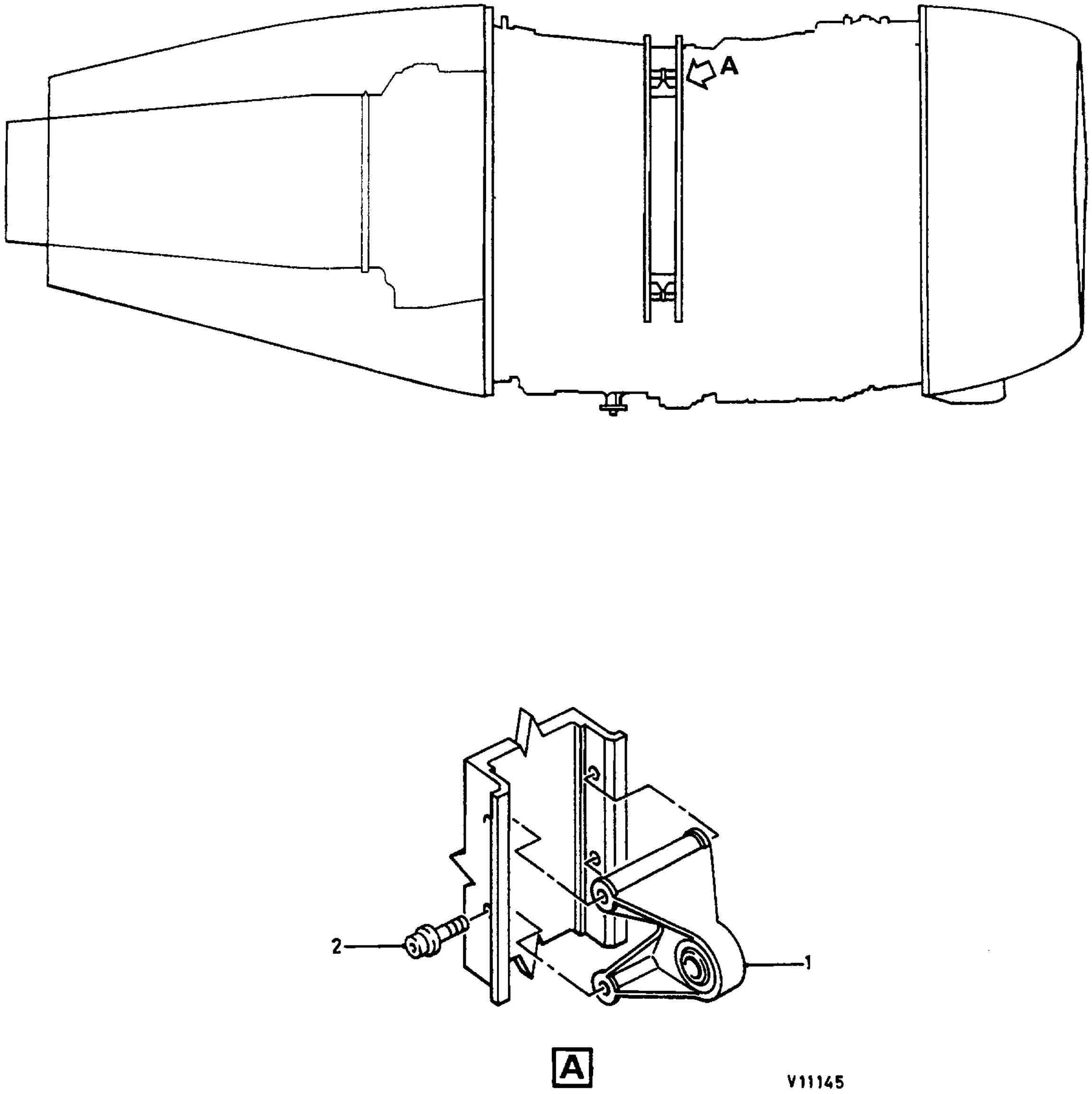
1. Remove forward engine mounting assembly *(Figure 401)*

NOTE: Refer to the Illustrated Parts Catalogue (IPC) for the part numbers of components listed in these procedures.

A. Procedure

(1) Remove four bolts (2) securing top front engine mount attachment assembly (1) to the engine flanges.

(2) Remove top attachment assembly (1) from the engine flanges.



Forward engine mounting assembly removal
Figure 401

2. Remove AC generator *(Figure 402)*

A. Procedure

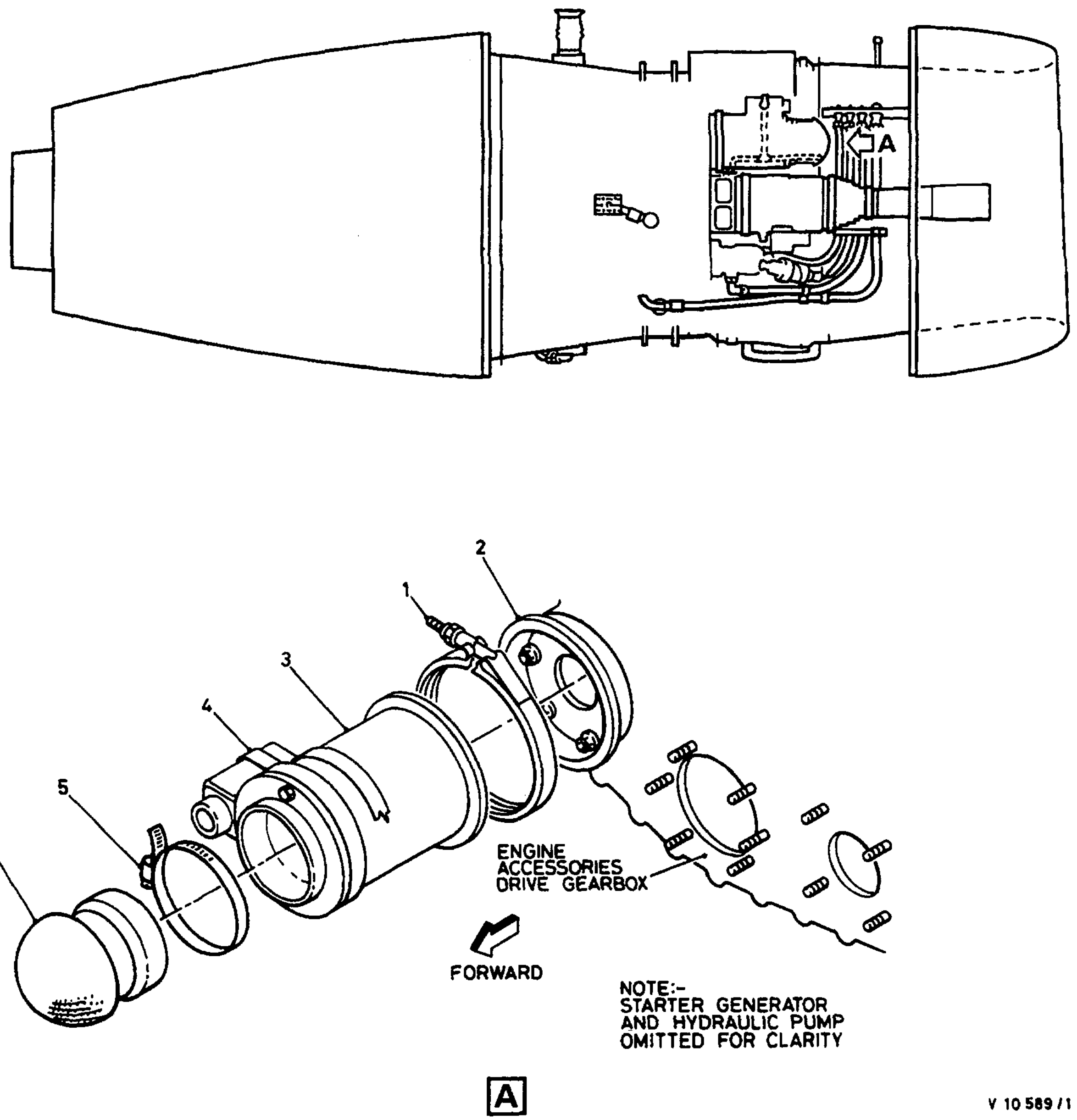
(1) Disconnect bonding strap (4) from AC generator earth stud.

WARNING: AC GENERATOR WEIGHS 20 LBS

(2) Support AC generator (3), release V-clamp (1) and withdraw generator (3) keeping it aligned until its drive shaft disengages. Remove AC generator (3) complete with air intake mesh guard (6).

(3) Blank off aperture over AC generator mounting adaptor (2).

(4) Loosen clamp (5) and remove air intake mesh guard assembly (6), with clamp (1) from AC generator (3).


A
2
1
3
4
5
6
ENGINE ACCESSORIES DRIVE GEARBOX
FORWARD
NOTE:-
STARTER GENERATOR AND HYDRAULIC PUMP OMITTED FOR CLARITY
A
V 10 589 / 1

AC generator removal
Figure 402

3. Remove starter/generator *(Figure 403)*

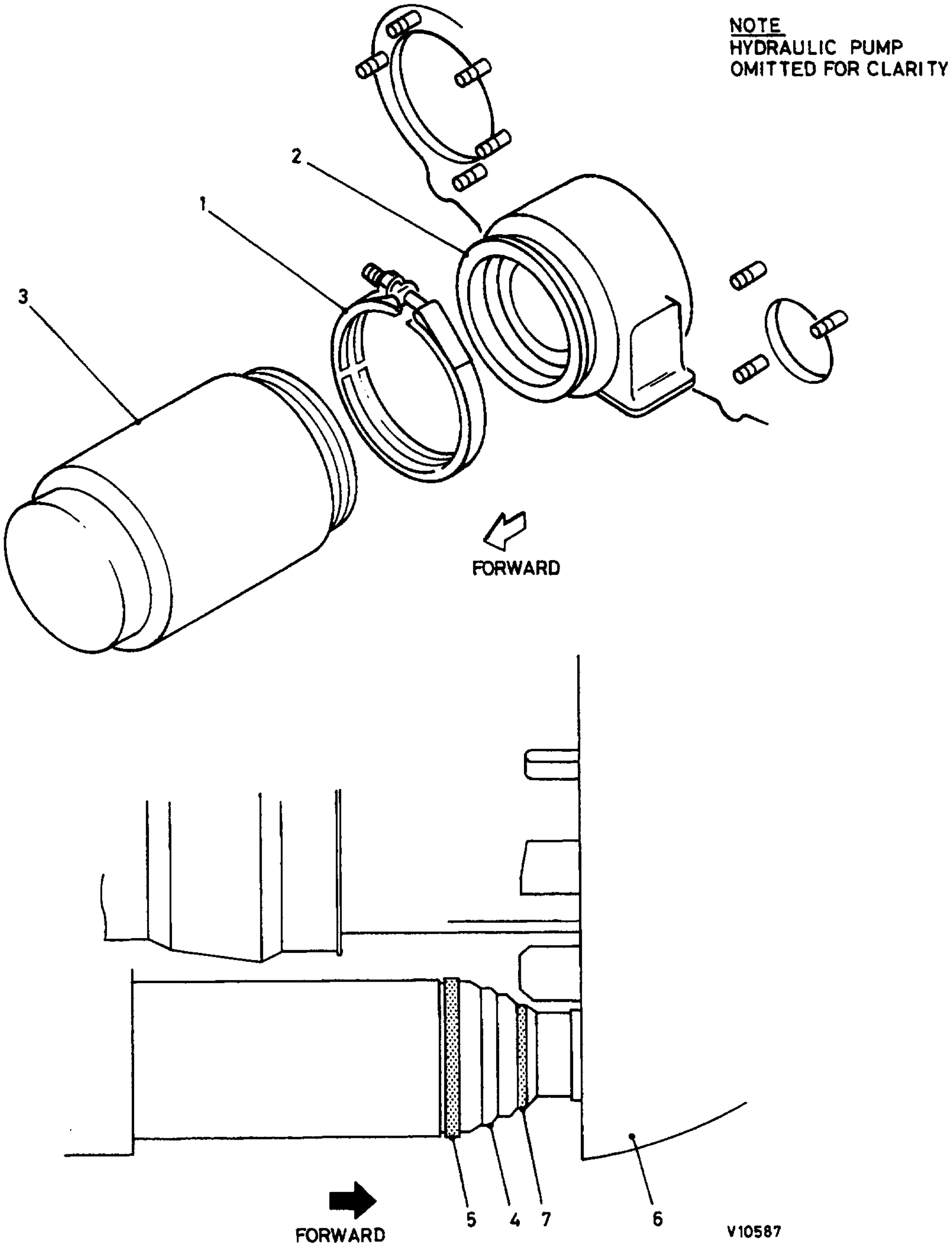
A. Procedure

(1) Release clamp (7) securing starter/generator flexible cooling air inlet duct (4) to inlet cowl (6), and release clamp (5) securing flexible cooling air inlet duct (4) to starter generator (3); remove air inlet duct (4).

WARNING: STARTER/GENERATOR WEIGHS APPROXIMATELY 37 LBS.

(2) Support starter/generator (3), release V-clamp (1) and withdraw starter/generator (3) keeping it aligned until its drive shaft disengages; remove starter/generator (3).

(3) Blank off aperture over starter/generator QAD adaptor (2).



Starter/generator removal
Figure 403

4. Remove hydraulic pump flexible pipes *(Figure 404)*

A. Procedure

(1) Remove clip (25), washer (26) and screw (27) securing fuel pipe (4) to engine mounted bracket.

(2) Remove clip (21), screw (22), washer (23) and nut (24) securing fuel pipe (4) to engine mounted bracket.

(3) Remove clips (16), (20), screw (17), washer (18) and nut (19) securing hydraulic pipe (3) to fuel pipe (4).

(4) Remove fairlead (13), screws (14) and washers (15) securing hydraulic hoses (1), (2), (3) to engine mounted bracket.

(5) Disconnect fuel pipe (4) from union (12) on engine mounted bracket.

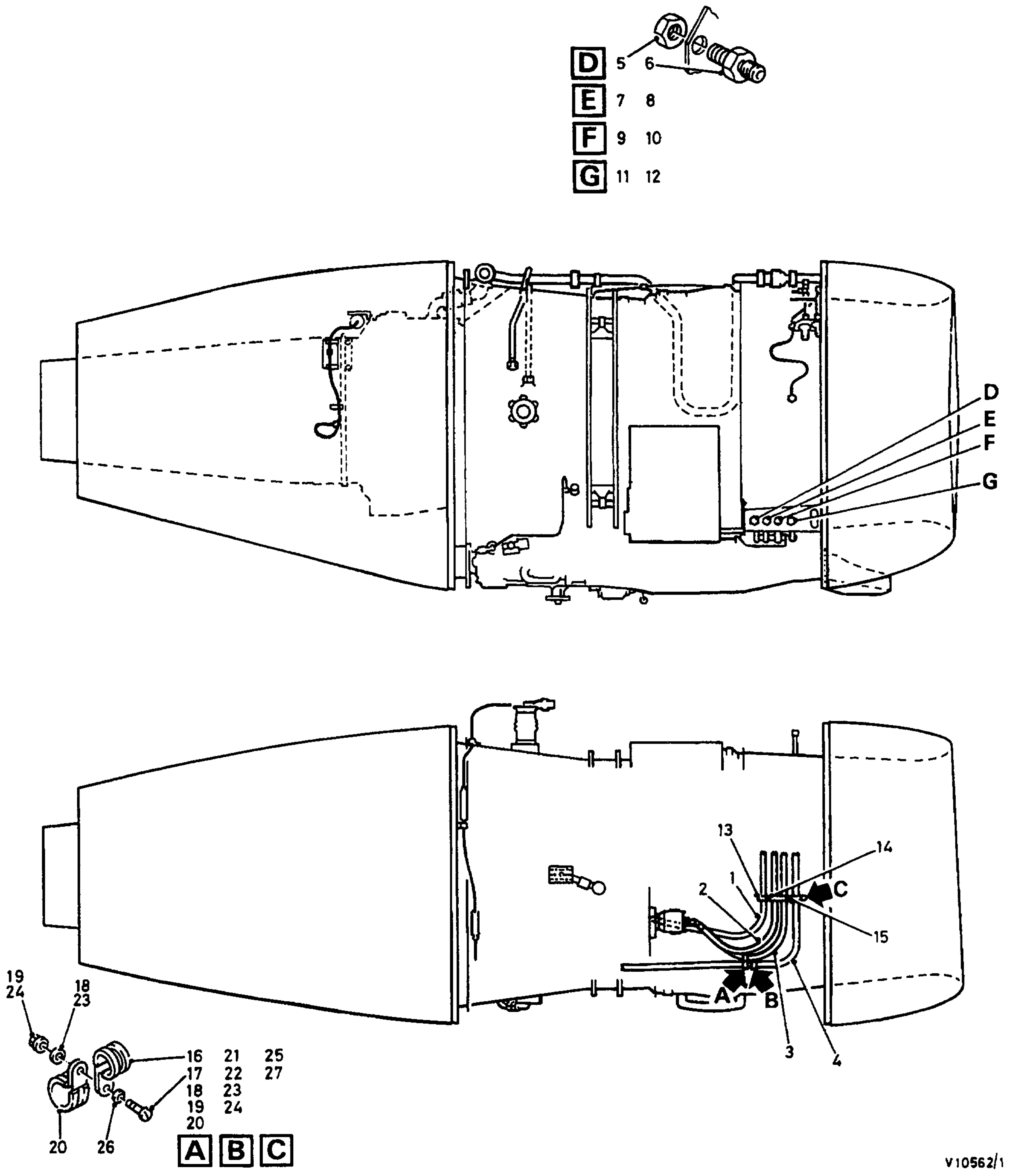
(6) Disconnect hydraulic pipes (1), (2), (3) from unions (6), (8), (10) on engine mounted bracket.

(7) Remove fuel pipe (4) from fuel pressure switch elbow pipe fitting. Blank off apertures on fuel pipe (4) and fuel pressure switch elbow pipe fitting.

(8) Remove hydraulic pipes (1), (2), (3) from hydraulic pump. Blank off apertures on hydraulic pump and hydraulic pipes (1), (2), (3).

(9) Remove fuel union (12), with nut (11), from engine mounted bracket. Blank off apertures on fuel pipe union (12).

(10) Remove hydraulic unions (6), (8), (10), with nuts (5), (7), (9), from engine mounted bracket. Blank off apertures on hydraulic unions (6), (8), (10).

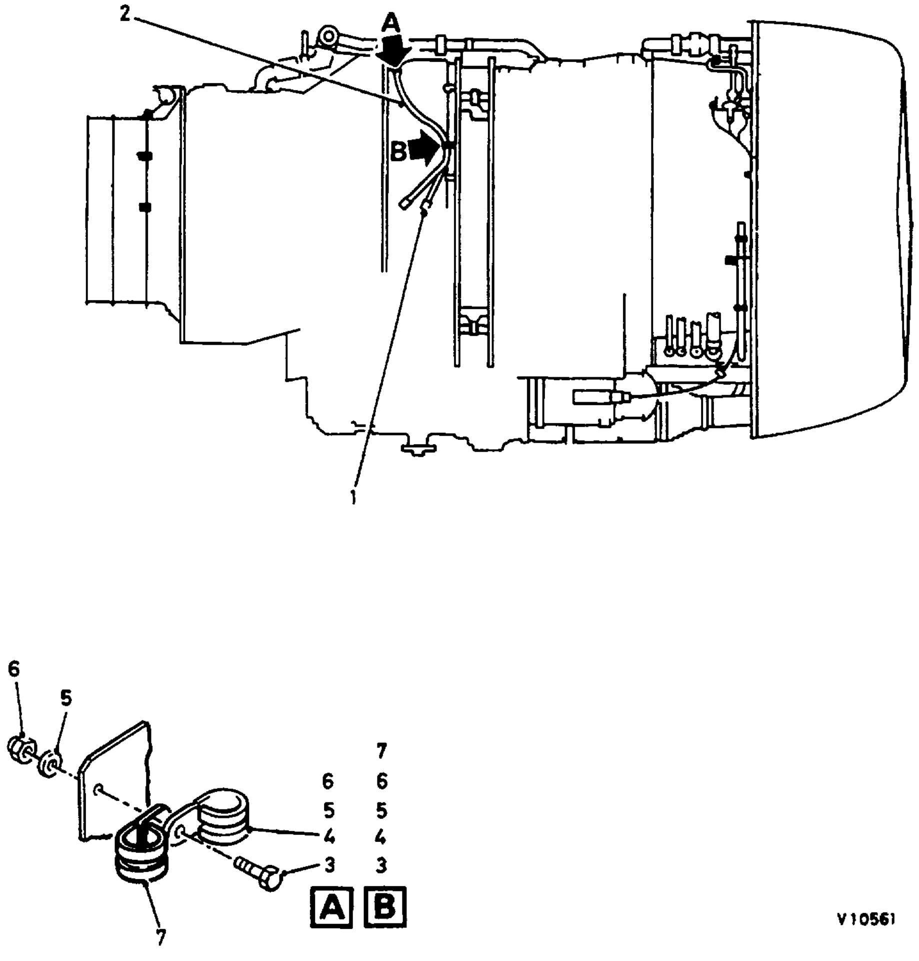


Hydraulic pump flexible hoses removal
Figure 404

5. Remove TA1, TA2 electrical harnesses *(Figure 405)*

A. Procedure

(1) Remove clips (4), bolts (3), washers (5), nuts (6) and clip (7) securing TA1 (1) and TA2 (2) electrical harnesses to engine from the vertical centre line of the engine.



TA1, TA2 electrical harnesses removal
Figure 405

6. Remove inlet cowl services *(Figure 406)*

A. Procedure

(1) Disconnect electrical connector P4 from engine inlet pressure and temperature sensor (4).

(2) Disconnect tube assembly (17) from anti-icing pressure switch (14).

(3) Remove tube assembly (17) from tapping on inlet cowl anti-icing pipe (18). Blank off apertures on tube assembly (17) and tapping on inlet cowl anti-icing pipe (18).

(4) Remove nut (15), washer (16) and anti-icing pressure switch (14) from bracket on inlet cowl. Install blank to anti-icing pressure switch (14).

(5) Remove screws (13), washers (12), and clips (11) securing tube assembly (10) to inlet cowl.

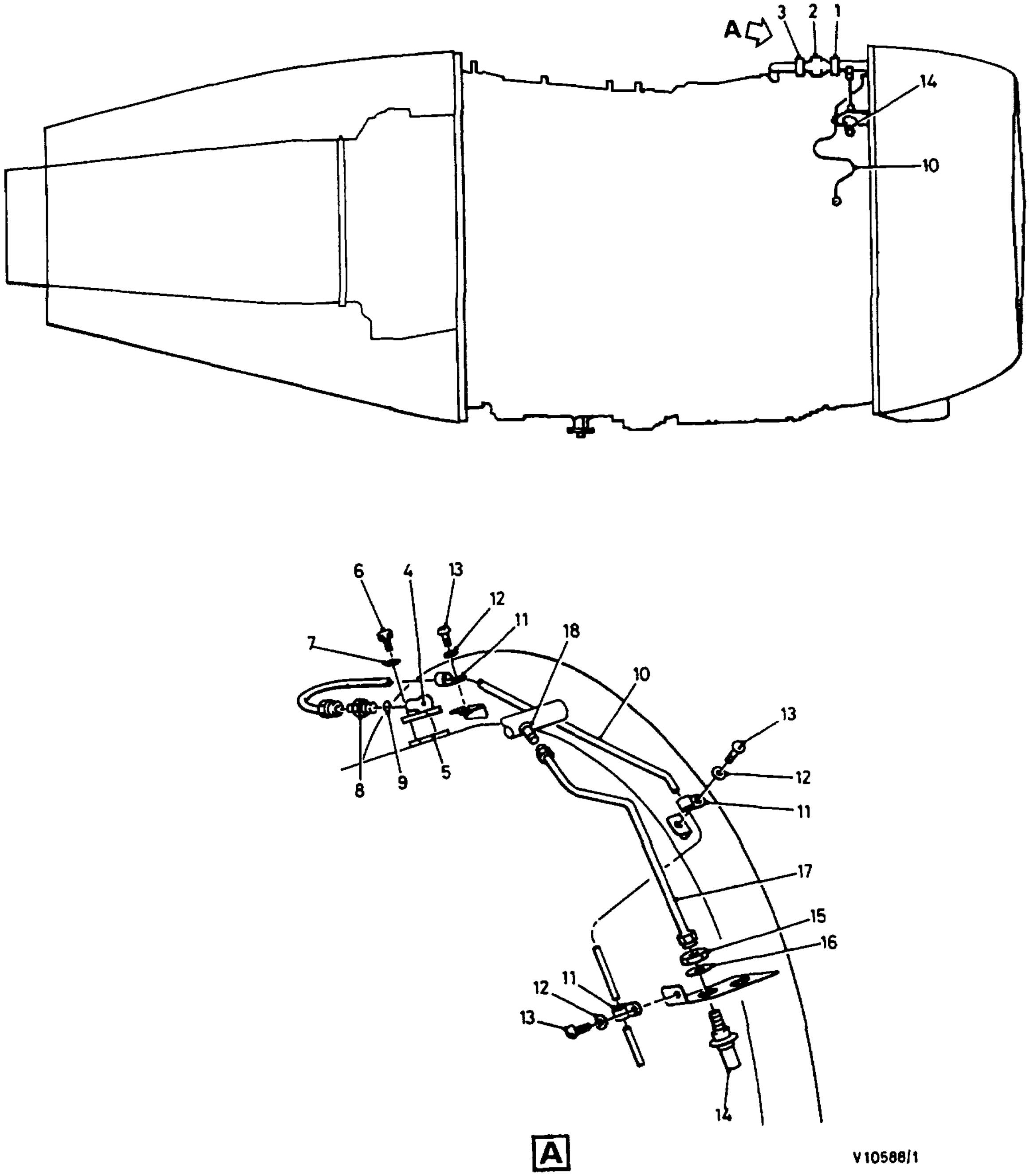
(6) Remove tube assembly (10) from reducer (8) on pressure and temperature sensor (4). Blank off apertures on tube assembly (10).

(7) Remove reducer (8) from pressure and temperature sensor (4). Remove and discard 'O' ring seal (9) from reducer (8), Install blank to reducer (8).

(8) Remove bolts (6) and washers (7) securing pressure and temperature sensor (4) to inlet cowl; remove pressure and temperature sensor (4) from inlet cowl. Blank off apertures on inlet cowl and temperature sensor (4).

(9) Remove V-clamp (3) from engine HP intake anti-icing pipe and inlet side of anti-icing shut off valve (2).

(10) Release V-clamp and remove anti-icing shut-off valve (2) from inlet cowl anti-icing pipe. Blank off apertures on anti-icing shut off valve (2) and inlet cowl anti-icing pipe.



Inlet cowl services removal
Figure 406

7. Remove inlet cowl *(Figure 407)*

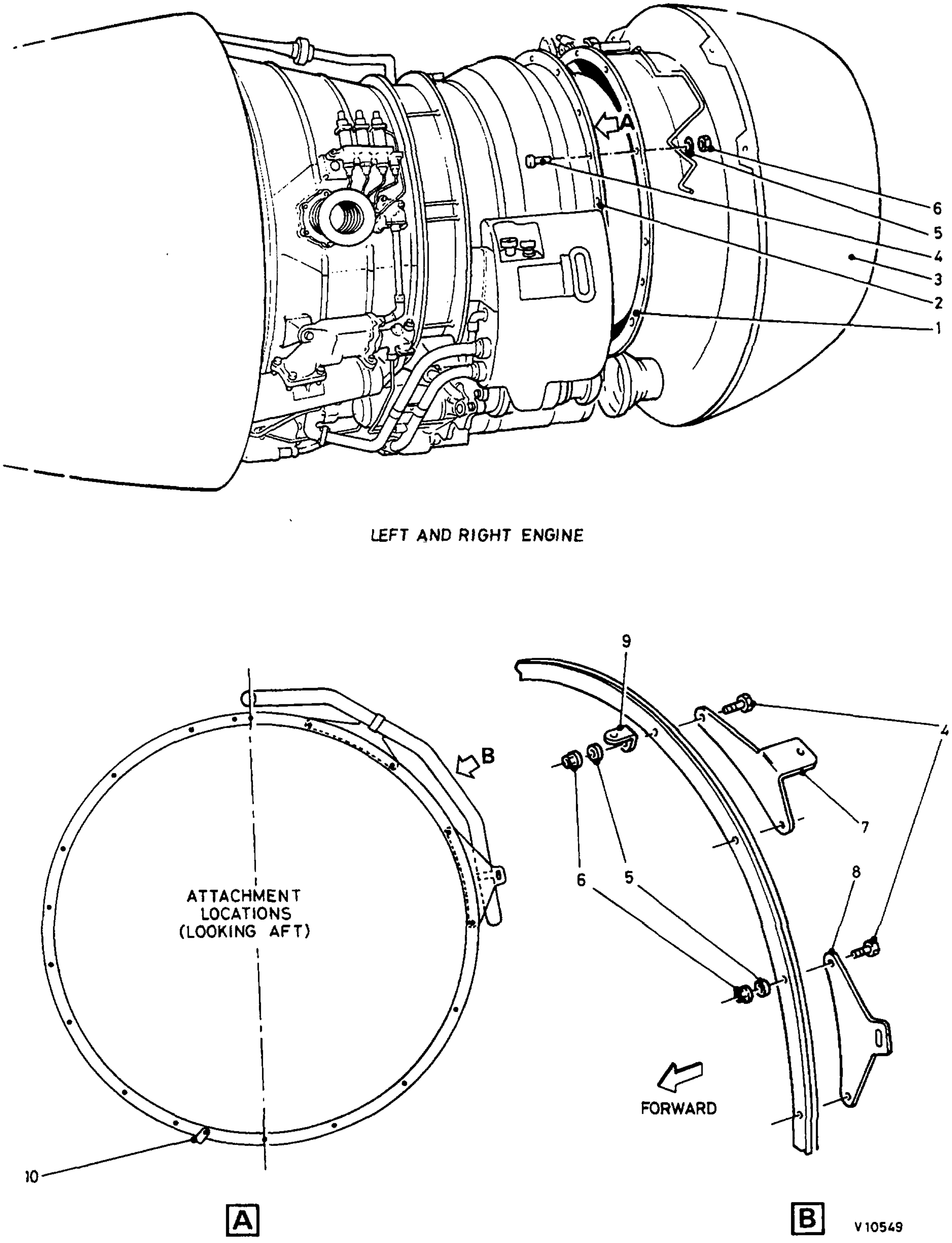
A. Procedure

(1) Support inlet cowl assembly (3).

(2) Remove all nuts (6), washers (5) and bolts (4) from inlet cowl/fan casing attachment flange (1), (2).

(3) Withdraw inlet cowl assembly (3) and it on a clean and protected surface.

(4) Install blank on engine fan casing.



Inlet cowl removal
Figure 407

8. Remove aft cowl assembly *(Figure 408)*

A. Procedure

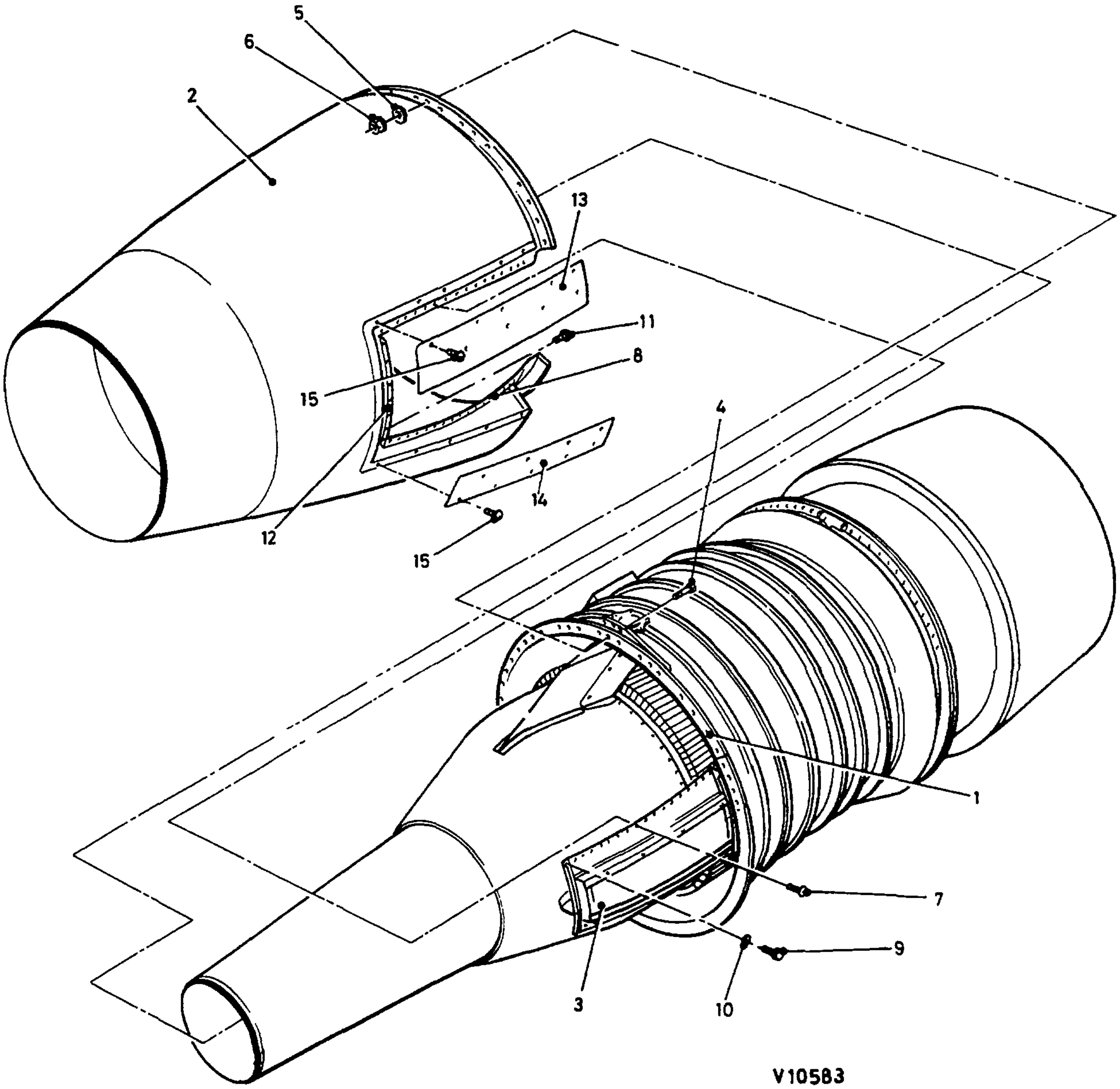
(1) Release quick-release studs (15) securing the upper (13) and lower (14) closing panels to aft cowl assembly (2); remove panels (13), (14).

(2) Release quick release studs (11) securing island assembly (3) to aft cowl inner skin rear angle (12).

(3) Release quick release studs (7) and remove bolts (9), washers (10), securing island structure (3) to aft cowl inner skin (8).

(4) Support aft cowl assembly (2), remove nuts (6), washers (5) and bolts (4) securing aft cowl assembly (2) to aft cowl/engine fan duct flange (1).

(5) Withdraw aft cowl assembly (2) outwards and rearwards leaving the island structure (3) in position attached to the engine fan duct rear flange.



Aft cowl assembly removal
Figure 408

9. Remove engine rear mount fairings *(Figure 409)*

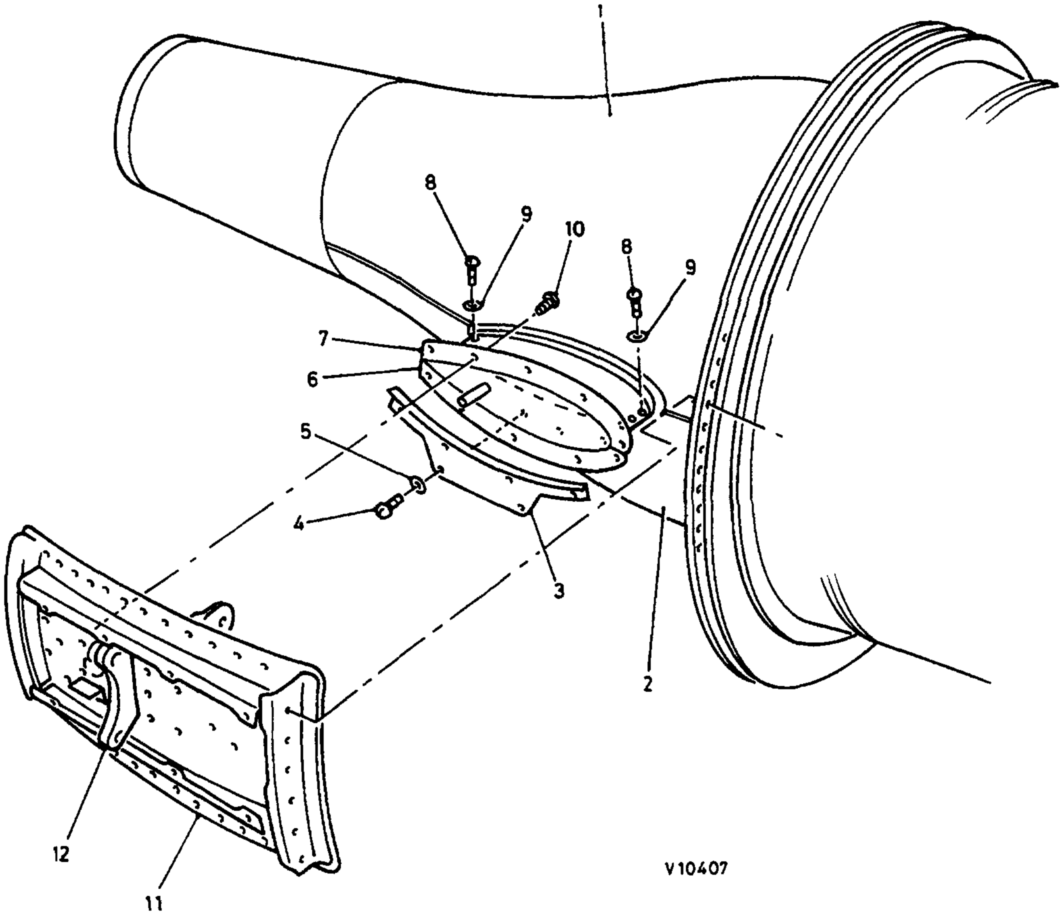
A. Procedure

(1) Release quick-release studs (10) securing upper (7) and lower engine mounting fairings (6) to island structure (11).

(2) Remove screws (8), with washers (9) securing upper (7) and lower engine mounting fairings (6) to fan exhaust duct inner skins (1), (2).

(3) Remove lower engine mounting fairing (6) from fairing support (3), and remove upper engine mounting fairing (7) from fan exhaust duct inner skin (2).

(4) Release quick-release studs (4), with washers (5), securing fairing support (3) to lower and upper engine fan exhaust duct inner skins (1), (2); remove fairing support (3) from inner skins (1), (2).



Engine rear mount fairings removal
Figure 409

10. Remove fan exhaust duct skin Panels and HP bleed duct fairings *(Figure 410)*

A. Procedure

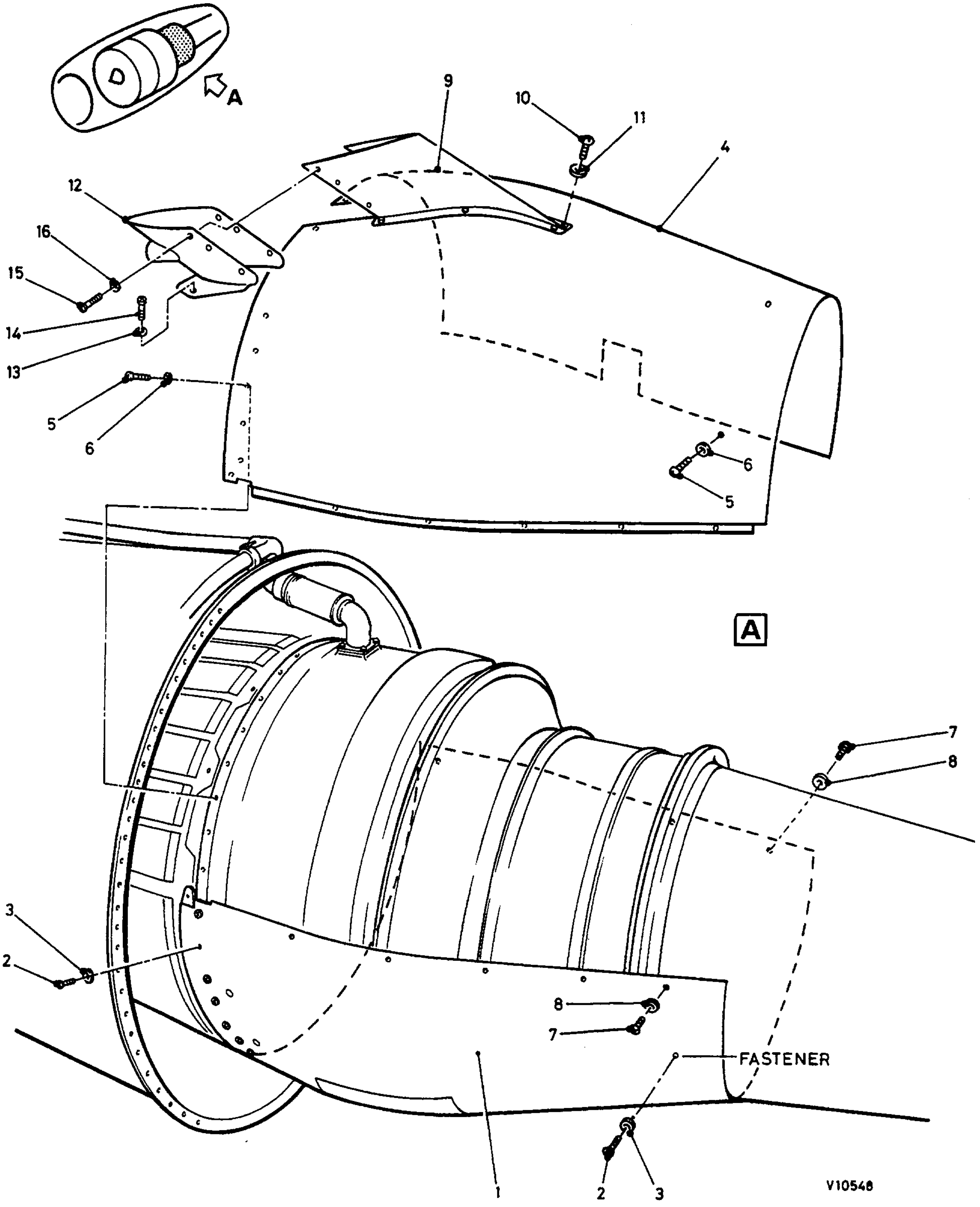
(1) Remove screws (15) and washers (16) securing front HP air bleed pipe fairing (12) and rear HP air bleed pipe fairing (9) together.

(2) Remove screws (14) and washers (13) securing front HP air bleed pipe fairing (12) to upper fan exhaust duct inner skin (4); remove fairing (12).

(3) Remove screws (10) and washers (11) securing rear HP air bleed pipe fairing (9) to upper fan exhaust duct inner skin (4); remove fairing (9).

(4) Remove screws (5), with washers (6), securing fan exhaust duct inner skin top panel (4) to engine, and release fasteners (7) along horizontal lap joint; remove top panel (4).

(5) Support fan exhaust duct inner skin bottom panel (1), remove screws (2) and washers (3); remove bottom panel (1).



Fan exhaust duct skin panels and HP bleed duct fairings removal
Figure 410

11. Remove engine rear mount and island structure *(Figure 411)*

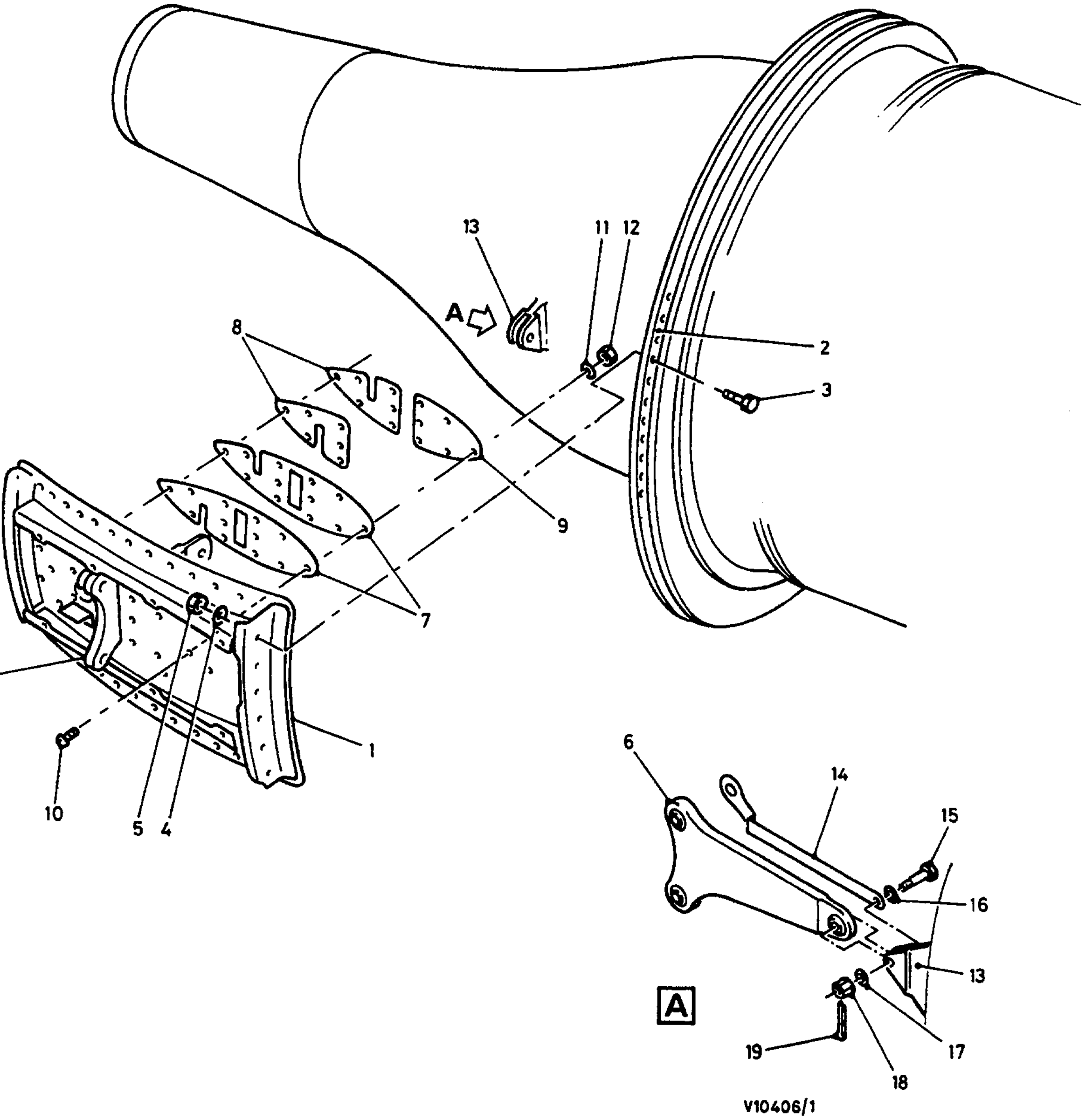
A. Procedure

(1) Remove nuts (12), washers (11) and bolts (10) securing seal assembly in position on island structure (1).

(2) Disassemble seals (7), heat shields (8), (9) and cable gaiter and withdraw electrical harnesses from island structure (1).

(3) Disconnect engine rear mount (6) at engine attachment lug (13) by removing split pin (19), nut (18), washers (17), (16) and bolt (15). Discard split pin (19). Remove engine rear mount (6), with bonding strap (14), from engine through island structure (1).

(4) Remove nuts (5), washers (4) and bolts (3) securing island structure (1) to engine aft cowl attachment flange (2); remove island structure (1).



Engine rear mount and island structure removal
Figure 411

12. Remove Zone Two fire detection harness *(Figure 412)*

A. Procedure

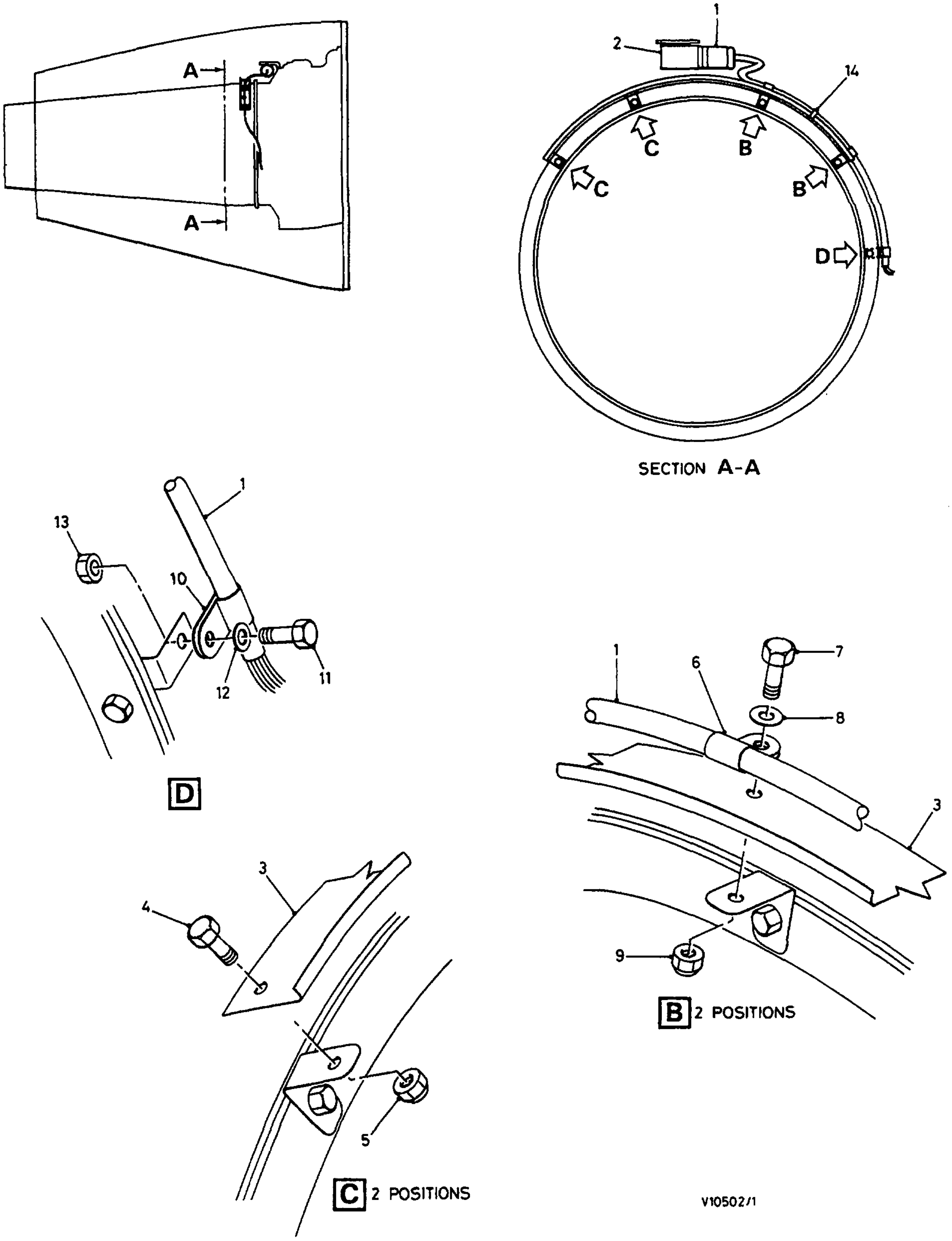
(1) Remove cable tie (14), securing fire detection harness (1) to support strip (3).

(2) *Remove nut (13), washer (12), bolt (11) and P-clip (10), securing fire detection harness (1) to* existing engine mounted bracket.

(3) In two positions indicated in *View B* remove nuts (9), washers (8), bolts (7) and P-clips (6) securing fire detection harness (1) to support strip (3).

(4) Remove bolts (4) and nuts (5), securing support strip (3) to existing engine mounted brackets. Remove support strip (3).

(5) Disconnect fire detection electrical harness connector (1) from responder (2). Remove harness (1) from engine.



Zone Two fire detection harness removal

Figure 412

13. Remove ITT indicator, ITT computer and N_1 monopole harnesses *(Figure 413)*

NOTE: The following disassembly procedures take an engine to a neutral standard, this then enables the engine to be fitted to the right hand, or back to the left hand, installation standard.

A. Procedure

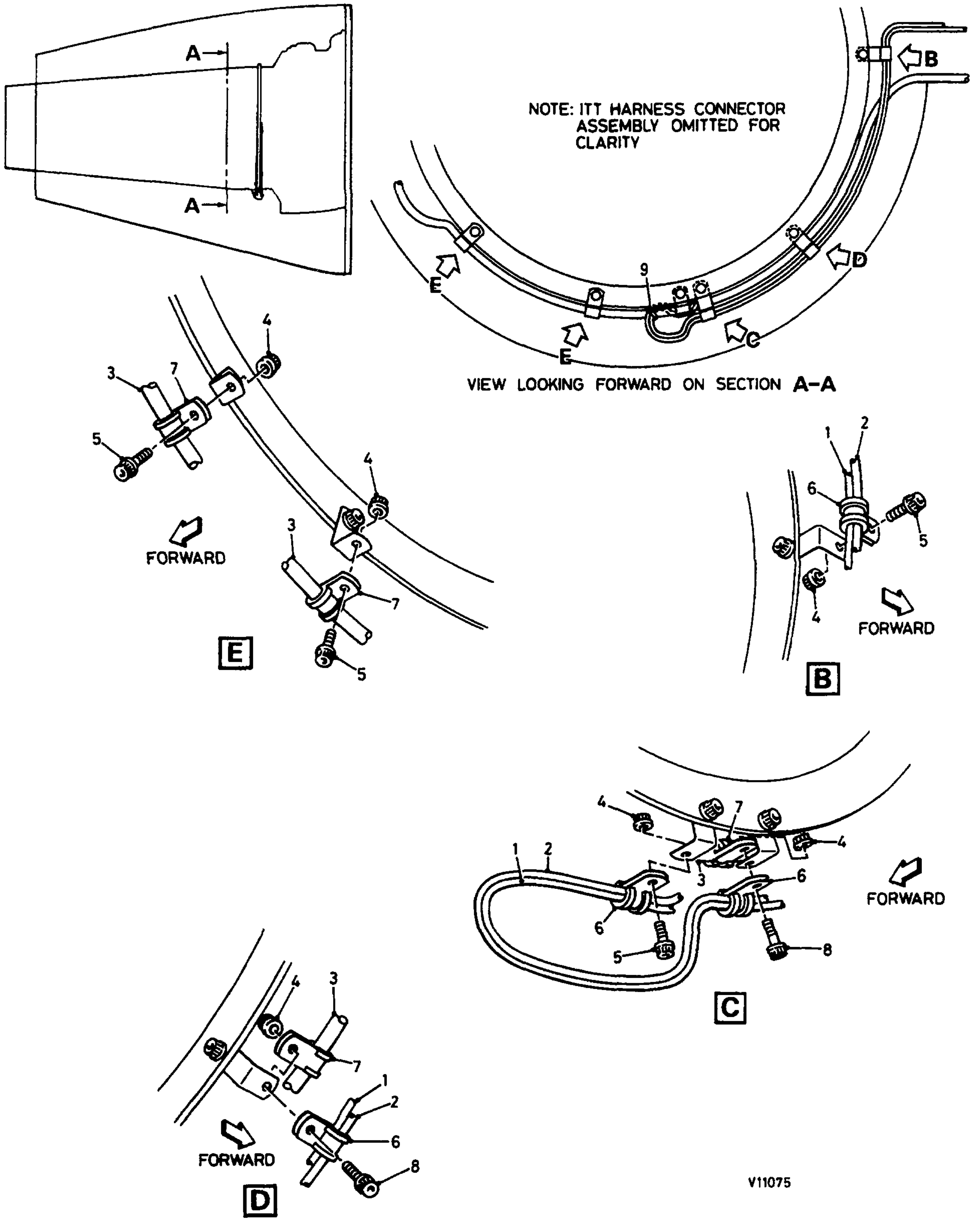
(1) Remove nut (4), bolt (5) and P-clip (6) securing ITT computer and indicator harnesses (1, 2) to existing mounting bracket. Refer to View B.

(2) Remove nut (4), bolt (8), P-clips (6) and (7) securing ITT computer, indicator (1, 2) and N_1 monopole (3) harnesses to existing mounting bracket. Refer to View D.

(3) Remove nut (4), bolt (8), P-clips (6) and (7) securing ITT computer, indicator (1, 2) and N_1 monopole (3) harnesses to existing mounting bracket. Refer to View C.

(4) Remove nut (4), bolt (5) and P-clip (6) securing ITT computer and indicator harnesses (1, 2) to existing mounting bracket. Refer to View C.

(5) Remove cable tie (9) securing ITT computer and indicator harnesses (1, 2) to N_1 monopole harness (3).


A
A
NOTE: ITT HARNESS CONNECTOR ASSEMBLY OMITTED FOR CLARITY
B
D
C
E
E
9
VIEW LOOKING FORWARD ON SECTION A-A
1
2
3
4
5
6
7
8
FORWARD
E
B
C
D
V11075

ITT indicator, ITT computer and N_1 monopole harness removal

Figure 413

14. Remove rudder bias pipe assembly *(Figure 414)*

A. Procedure

(1) Remove nuts (16), distance tubes (15), washers (14) and clips (12), securing rudder bias pipe assembly (7), from brackets (8).

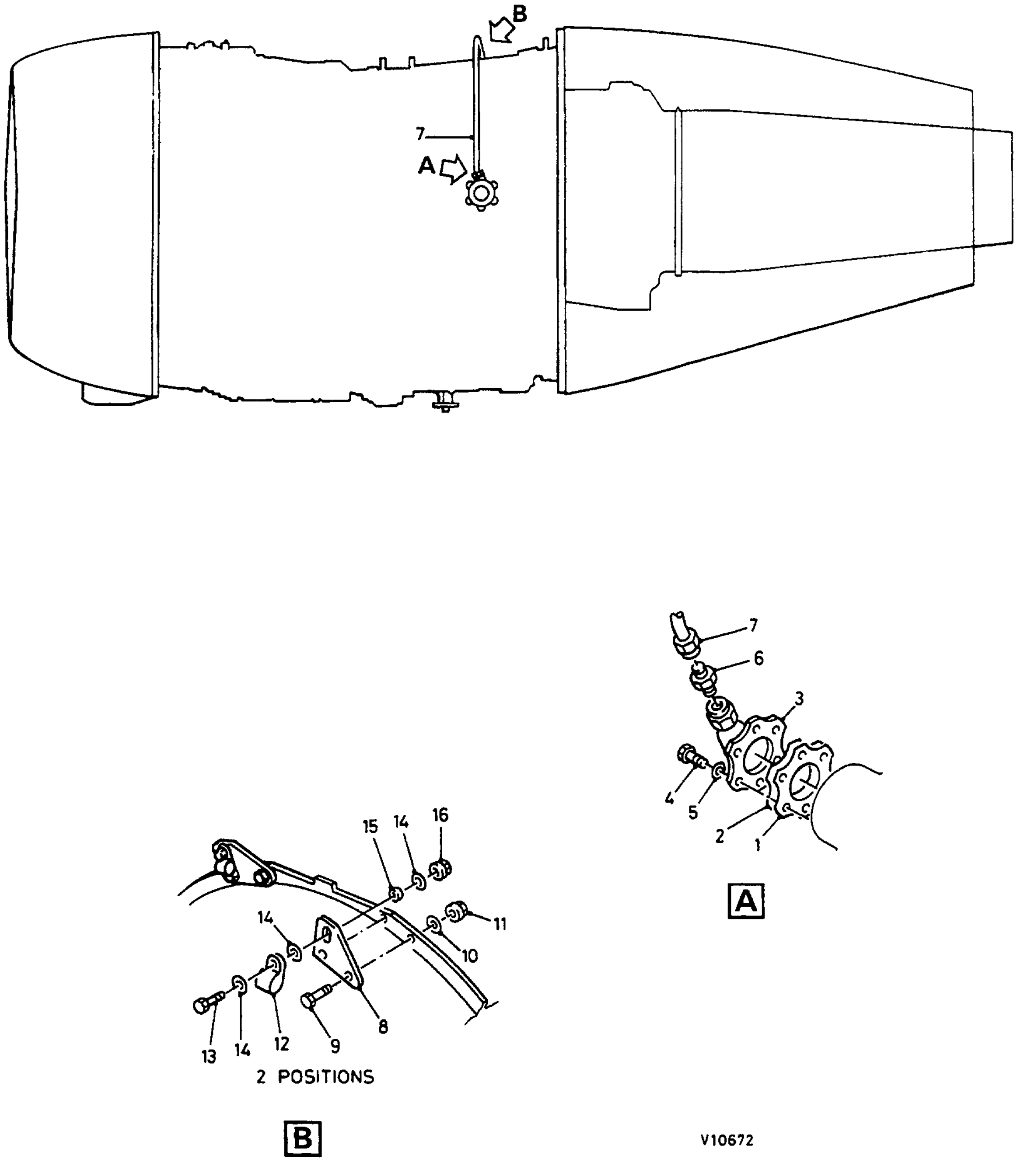
(2) Remove rudder pipe assembly (7) from adaptor (6).

(3) Remove nuts (11), washers (10), bolts (9) and brackets (8) from engine casing flange.

(4) Remove adaptor (6) from tube assembly (3).

(5) Remove bolts (4) and washers (5) securing tube assembly (3) to engine tapping; remove tube assembly from engine tapping and discard gaskets (1), (2).

(6) Install blanking plate and gasket, coated with Hylomar SQ32M, to tapping aperture and secure with bolts. Torque-tighten bolts to 30-35 lbf.in. and safety with lockwire.



Rudder bias pipe assembly removal
Figure 414

15. Remove HP intake anti-icing pipe *(Figure 415)*

A. Procedure

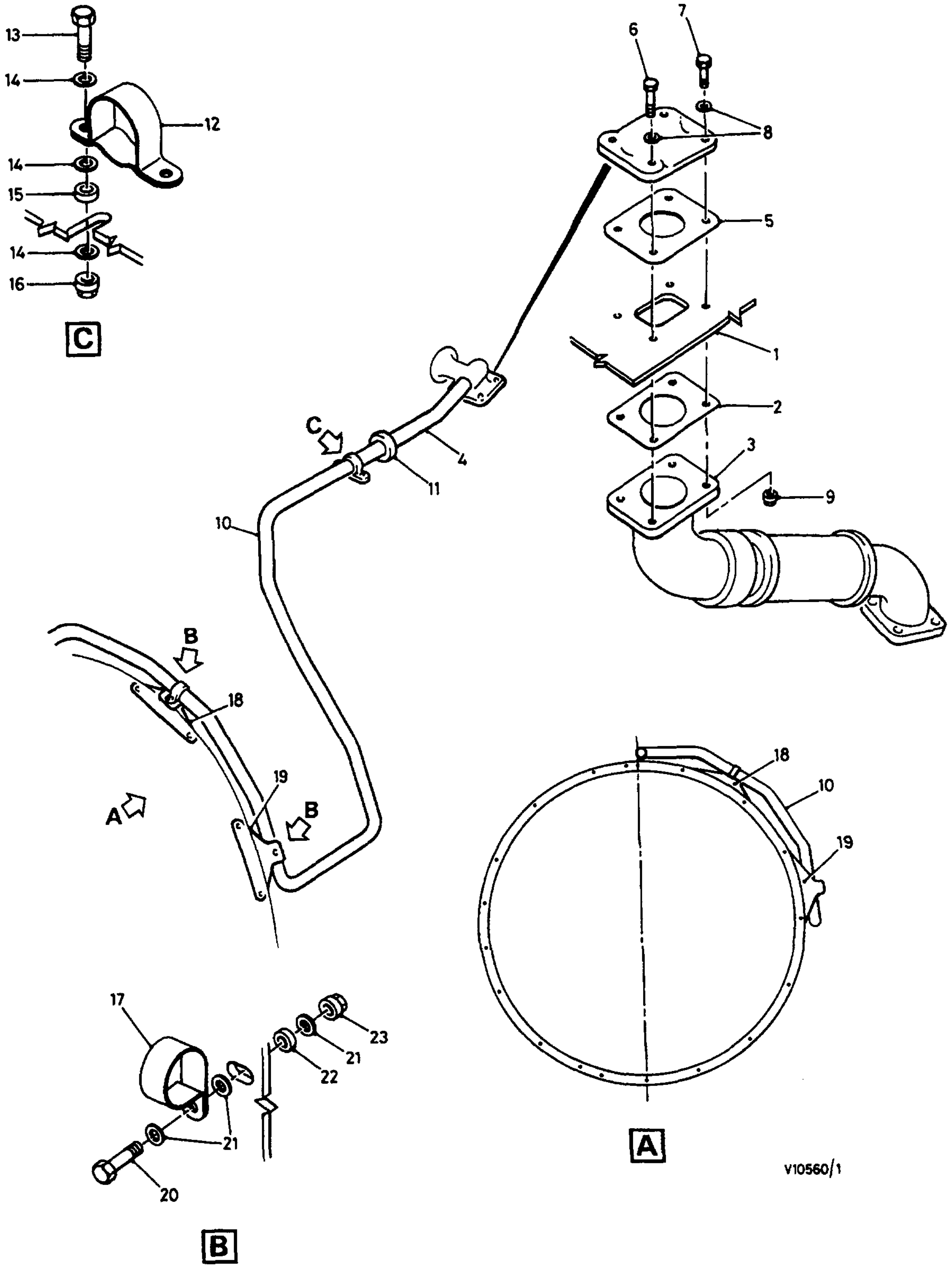
(1) Remove nuts (23), bolts (20), washers (21), distance tubes (22) and brackets (18), (19); then remove clips (17) from HP intake anti-icing pipe (10).

(2) Remove nuts (16), distance tubes (15), washers (14) and bolts (13); then remove clamp (12) securing HP intake anti-icing pipe (10) to engine casing.

(3) Release clamp (11), then remove HP intake anti-icing pipe (10) from tube assembly (4).

(4) Release coupling nut on HP line assembly (3) and remove gasket (2) from between HP line assembly (3) and engine casing (1). Discard gasket (2). Blank off aperture on HP line assembly (3).

(5) Remove nuts (9), washers (8) and bolts (6), (7) securing tube assembly (4) to engine casing; then remove tube assembly (4) with gasket (5). Discard gasket (5). Blank off apertures on tube assembly (4).



HP intake anti-icing pipe removal
Figure 415

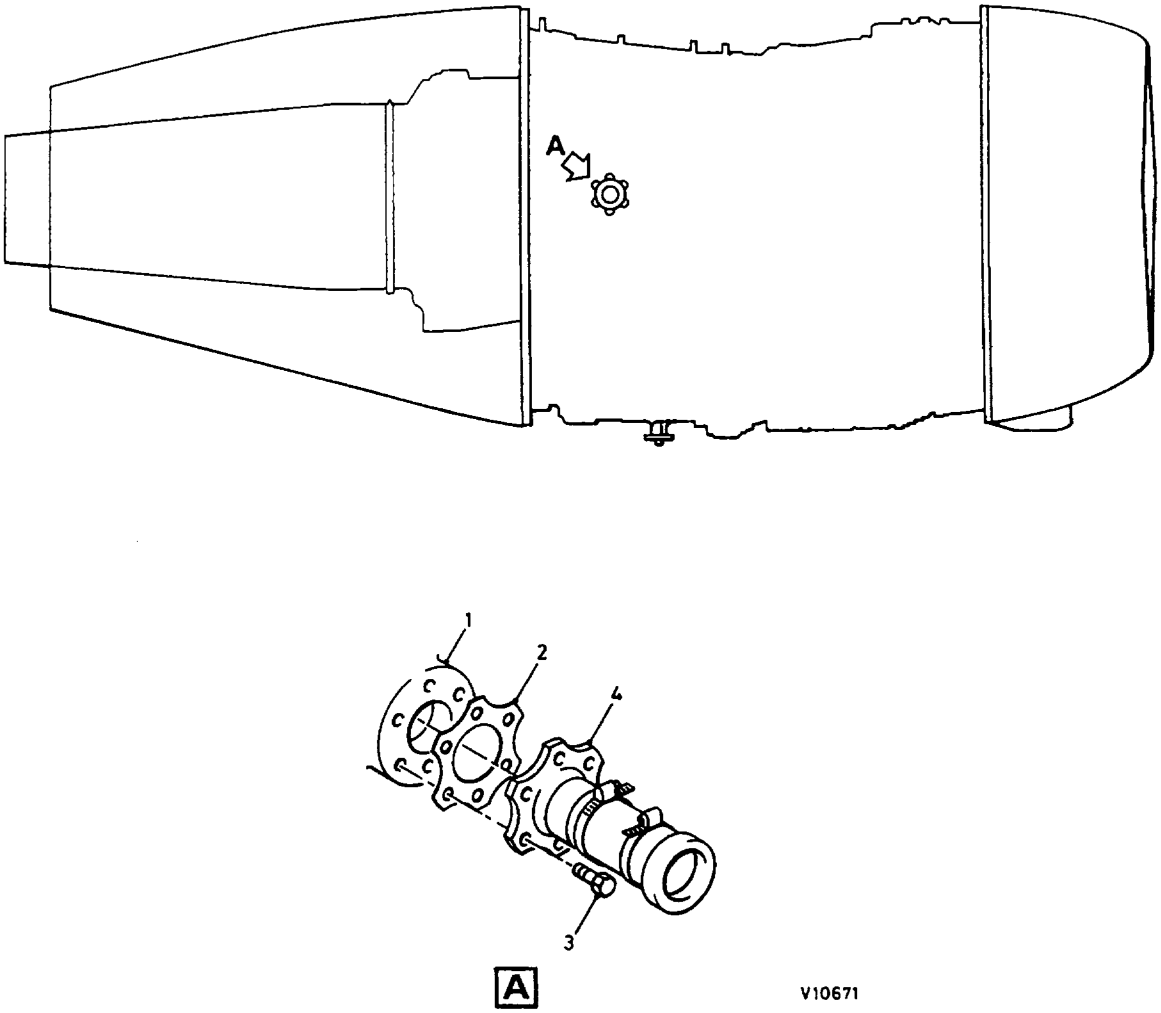
16. Remove LP air supply connector *(Figure 416)*

A. Procedure

(1) Remove attachment bolts (3) securing low pressure connector assembly (4) to tapping on engine. Remove LP connector assembly, with gasket (2) from tapping and discard gasket.

(2) Install new gasket, coated with sealant (Item 310) (see Chapter 71-00-06) to tapping and secure blanking plate with six attachment bolts.

(3) Tighten bolts to a torque of 30-35 lbf.in. and safety with lockwire.



LP air supply connector removal
Figure 416

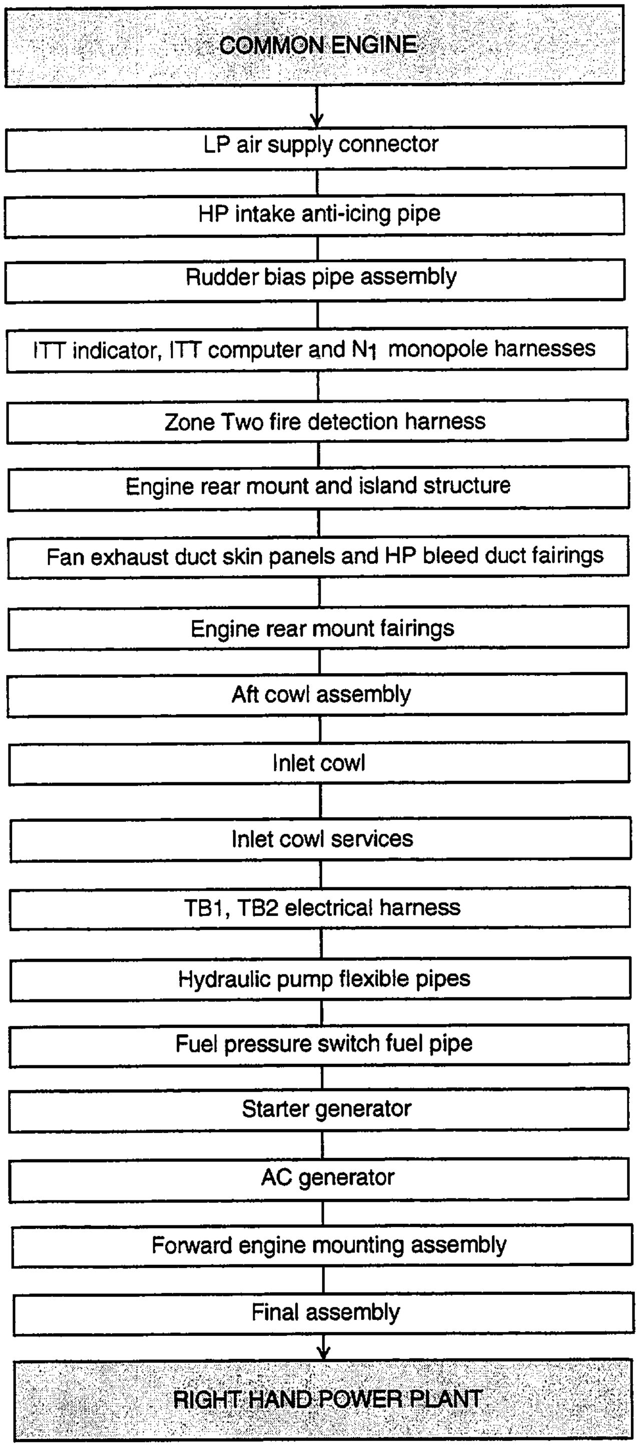
RIGHT HAND POWER PLANT STANDARD

GENERAL DESCRIPTION

1. General

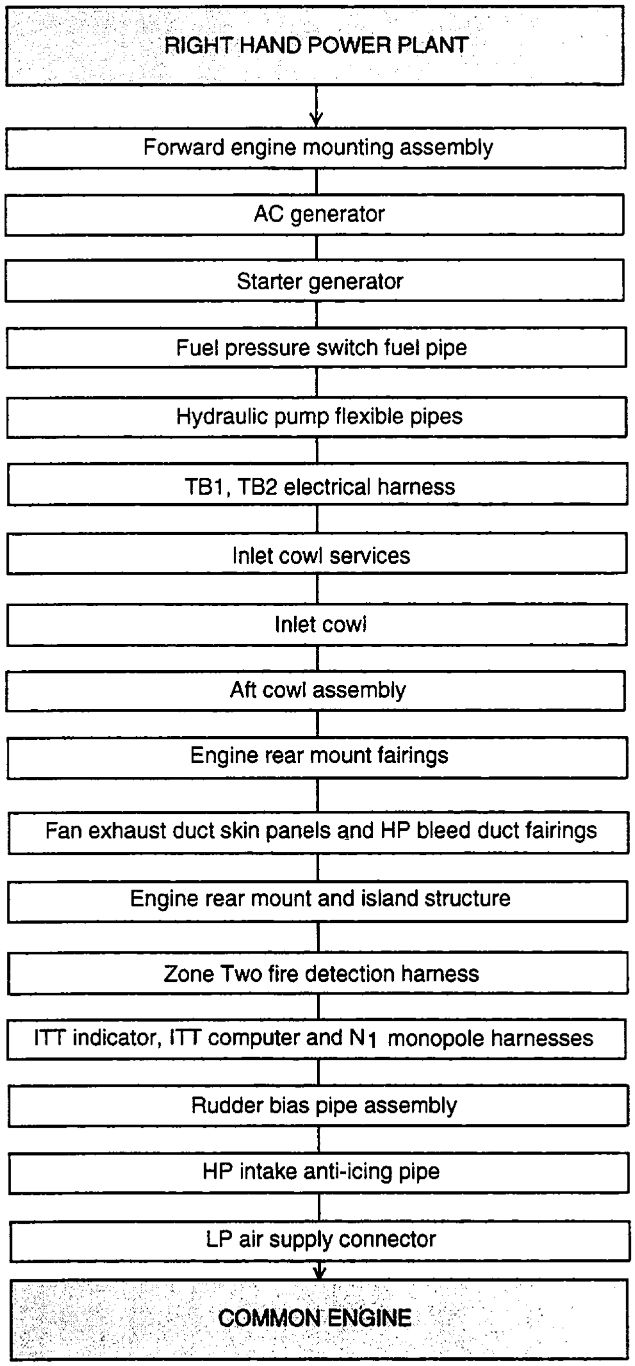
This section illustrates *(Figure 1)* and then details the procedures for building a 'common engine standard' engine to a standard for installation onto the right hand side of the aircraft and then illustrates *(Figure 2)* and details disassembly procedures back to the 'common engine standard'.

During installation of pipes and couplings, observe the torque loading procedures given in 71-00-03 unless otherwise stated in the text.


COMMON ENGINE
LP air supply connector
HP intake anti-icing pipe
Rudder bias pipe assembly
ITT indicator, ITT computer and N1 monopole harnesses
Zone Two fire detection harness
Engine rear mount and island structure
Fan exhaust duct skin panels and HP bleed duct fairings
Engine rear mount fairings
Aft cowl assembly
Inlet cowl
Inlet cowl services
TB1, TB2 electrical harness
Hydraulic pump flexible pipes
Fuel pressure switch fuel pipe
Starter generator
AC generator
Forward engine mounting assembly
Final assembly
RIGHT HAND POWER PLANT

M5458
HA00B995273AA

Power plant build to right hand standard
Figure 1


RIGHT HAND POWER PLANT
Forward engine mounting assembly
AC generator
Starter generator
Fuel pressure switch fuel pipe
Hydraulic pump flexible pipes
TB1, TB2 electrical harness
Inlet cowl services
Inlet cowl
Aft cowl assembly
Engine rear mount fairings
Fan exhaust duct skin panels and HP bleed duct fairings
Engine rear mount and island structure
Zone Two fire detection harness
ITT indicator, ITT computer and N1 monopole harnesses
Rudder bias pipe assembly
HP intake anti-icing pipe
LP air supply connector
COMMON ENGINE

M5457
HA00B995272AA

Right hand power plant disassembly back to common standard
Figure 2

RIGHT HAND POWER PLANT STANDARD

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1. Install LP air supply connector *(Figure 401)*

NOTE: Refer to the Illustrated Parts Catalogue (IPC) for the part numbers of components listed in these procedures.

A. Parts List

Item No.	Component	Units per assembly
2	Gasket	1
3	Bolt	6
4	Connector assembly	1

B. Procedure

(1) Remove the six bolts securing the blanking plate to the low pressure air supply tapping (1) on the left side of the engine.

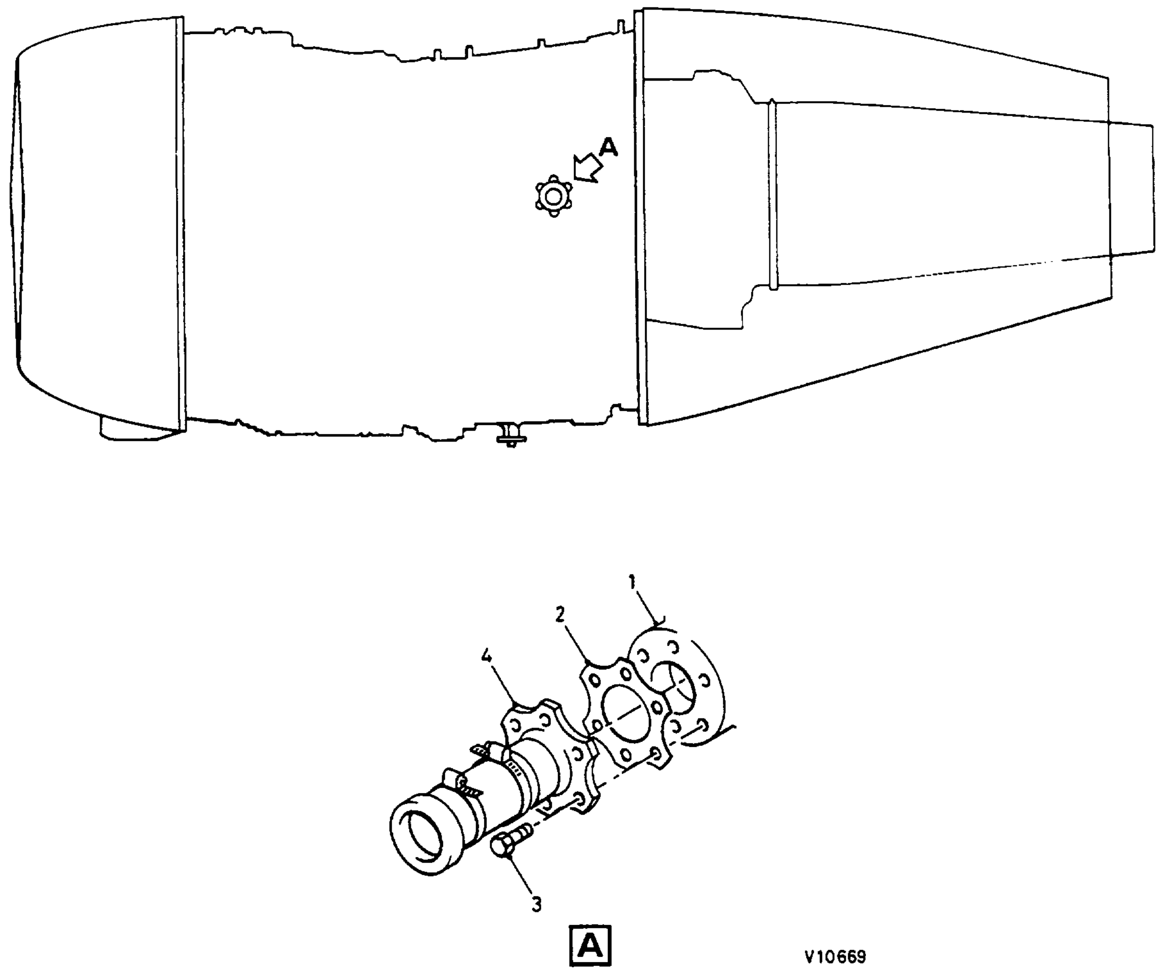
(2) Remove blanking plate and gasket, discard gasket.

(3) Install new gasket (2), coated with sealant (Item 310) (see Chapter 71-00-06) to tapping.

(4) Secure low pressure connector assembly (4) with six attachment bolts (3).

(5) Tighten bolts (3) to a torque of 30-35 lbf.in.

(6) Safety the attachment bolts (3) with lockwire.



LP air supply connector installation
Figure 401

2. Install HP intake anti-icing pipe *(Figure 402)*

A. Parts List

Item No.	Component	Units per assembly
2	Gasket	1
4	Tube assembly	1
5	Gasket	1
6	Bolt	2
7	Bolt	2
8	Washer	4
9	Nut	2
10	Tube assembly	1
11	Clamp	1
12	Clamp	1
13	Bolt	2
14	Washer	6
15	Tube-distance	2
16	Nut	2
17	Clip	2
18	Bracket	1
19	Bracket	1
20	Bolt	2
21	Washer	6
22	Tube-distance	2
23	Nut	2

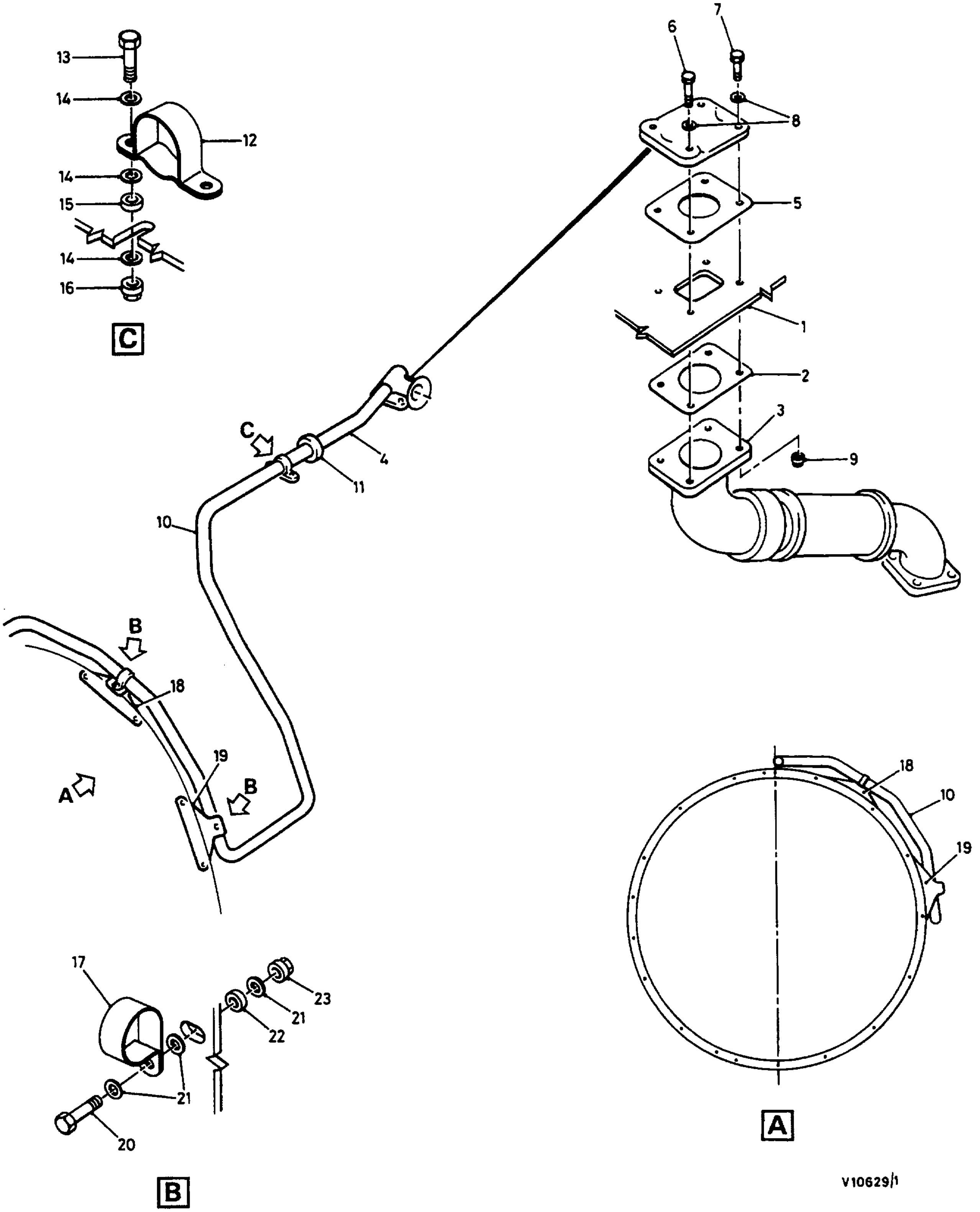
B. Procedure

(1) Install new gasket (2) between HP line assembly (3) and engine casing (1).

(2) Assemble tube assembly (4) with gasket (5), bolts (6), (7), washers (8) and nuts (9).

NOTE: Make sure coupling nut on HP line assembly is loose while tightening forward elbow flange. Hold forward elbow to prevent loads being transmitted to engine casing.

(3) Tighten bolts (6), (7) to a torque of 30-35 lbf.in.



HP intake anti-icing pipe installation
Figure 402

(4) Tighten coupling nut on HP line assembly (3) to a torque of 500-700 lbf.in. and safety with lockwire.

(5) Loosely assemble tube assembly (10) with clamp (11) onto tube assembly (4).

(6) Install clamp (12) and secure with bolts (13), washers (14), distance tubes (15) and nuts (16).

(7) Assemble clips (17) onto tube assembly (10) and brackets (18), (19) with bolts (20), washers (21), distance tubes (22) and nuts (23).

(8) Position brackets (18), (19) in position shown in *View A*.

(9) Tighten nuts (23) and bolts (20) to secure clips (17) onto brackets (18), (19).

(10) Tighten clamp (11) to a torque of 35-45 lbf.in.

3. Install rudder bias pipe assembly *(Figure 403)*

A. Parts List

Item No.	Component	Units per assembly
1	Gasket	1
2	Gasket	1
3	Tube assembly	1
4	Bolt	6
5	Washer	6
6	Adaptor	1
7	Tube assembly	1
8	Bracket	2
9	Bolt	4
10	Washer	4
11	Nut	4
12	Clip	2
13	Bolt	2
14	Washer	6
15	Distance tube	2
16	Nut	2

B. Procedure

(1) Remove the six bolts securing the blanking plate to the low pressure air supply tapping on right side of the engine.

(2) Remove blanking plate and discard gasket.

(3) Install new gaskets (1), (2), coated with sealant (Item 310) (see Chapter 71-00-06) to low pressure air supply tapping.

(4) Secure tube assembly (3) to tapping with bolts (4) and washers (5).

(5) Tighten bolts (4) to a torque of 30-35 lbf. ins.

(6) Safety the bolts (4) with lockwire.

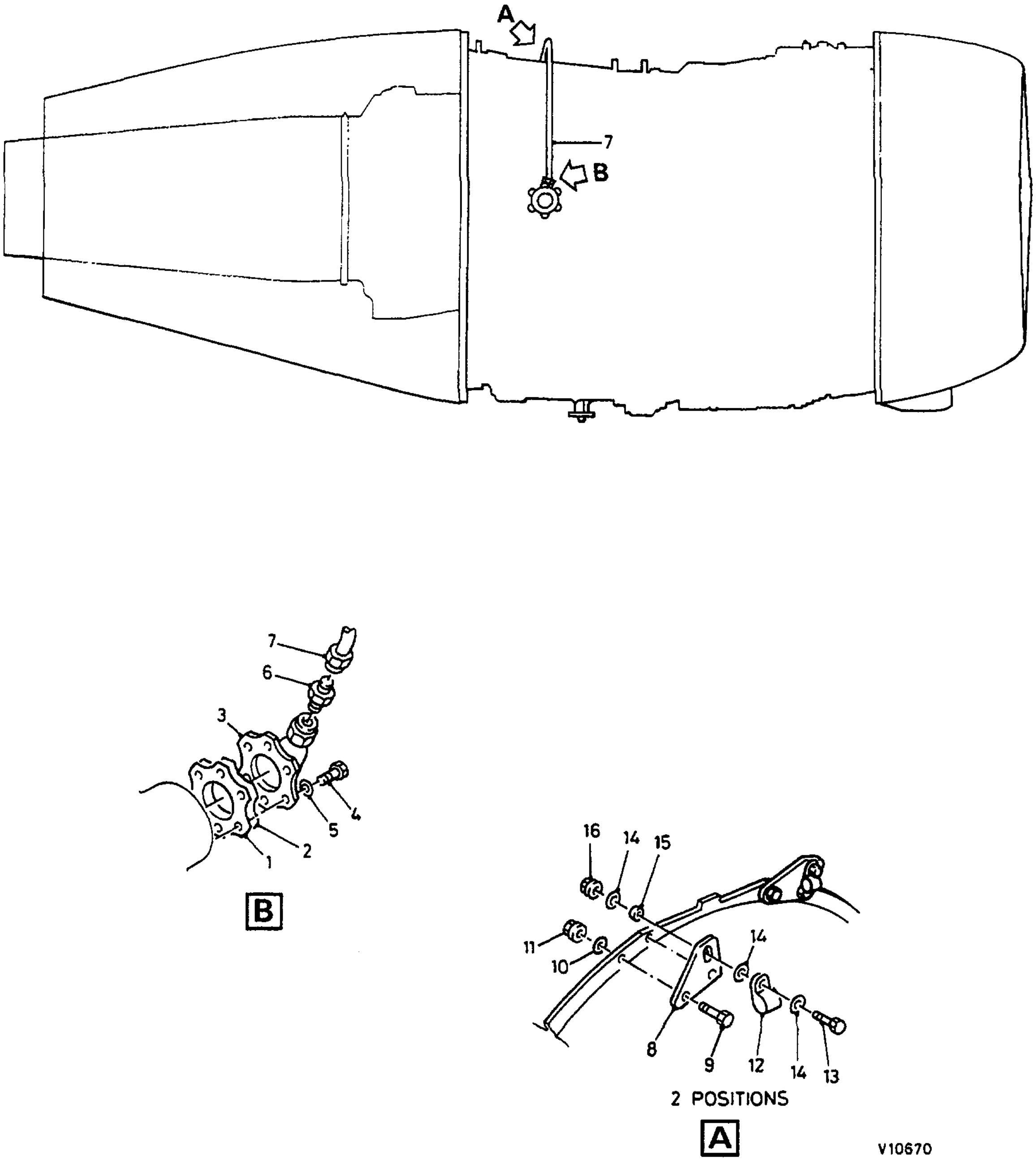
(7) Install adaptor (6) to tube assembly (3) and safety with lockwire.

(8) Loosely assemble tube assembly (7) to adaptor (6).

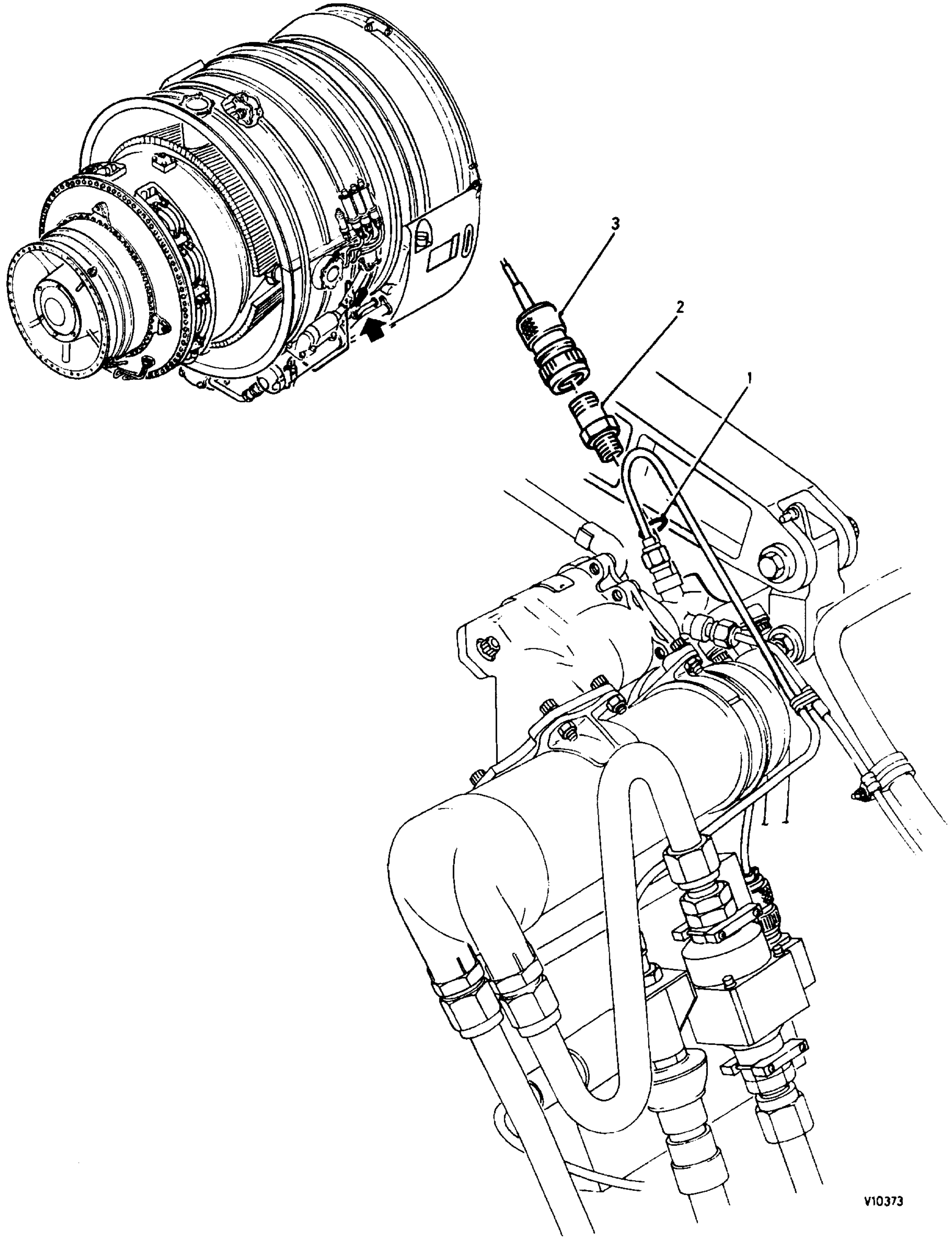
(9) Install brackets (8) to engine casing flange and secure with bolts (9), washers (10) and nuts (11).

(10) Install clips (12) to pipe assembly (7) and secure to brackets (8) with bolts (13), washers (14), distance tubes (15) and nuts (16).

(11) Tighten tube assembly (7) into adaptor (6) and safety with lockwire.



Rudder bias pipe assembly installation
Figure 403



Oil temperature bulb installation
Figure 404

5. Install oil pressure transmitter *(Figure 405)*

A. Parts List

Item No.	Component	Units per assembly
1	Bracket assembly	1
2	Screw	2
3	Washer	2
4	Nut	2
5	Bracket assembly	1
6	Bracket assembly	1
7	Bolt	6
8	Washer	6
9	Tee-piece fitting	1
10	Nut	1
11	Washer	1
12	Pipe assembly	1
13	Clip	2
14	Screw	1
15	Washer	1
16	Nut	1
17	Oil pressure transmitter	1
18	‘O’ ring seal	1

B. Procedure

(1) Secure bracket assembly (1) to engine with attachment screws (2), washers (3) and nuts (4).

(2) Position bracket assembly (5) onto engine and secure bracket assembly (6) onto bracket assemblies (5) and (1) with attachment bolts (7) and washers (8).

(3) Secure tee-piece fitting (9) onto bracket assembly (6) with nut (10) and washer (11).

(4) Remove blanks from tee-piece fitting (9) and pipe assembly (12).

(5) Secure pipe assembly (12) to tee-piece fitting (9) and engine aperture. Safety the pipe unions with lockwire.

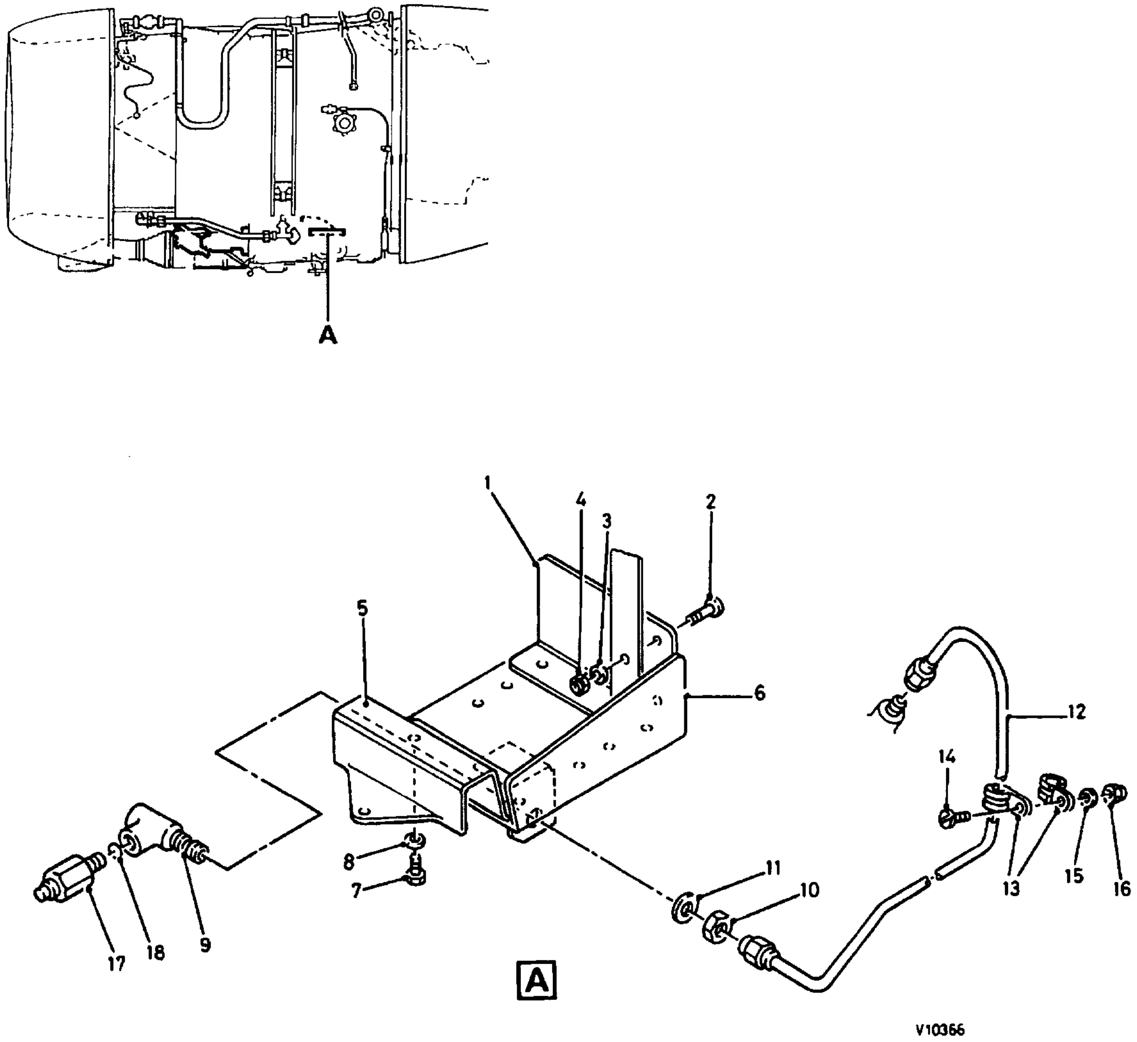
(6) Secure pipe assembly (12) to adjacent pipe using clips (13), screw (14), washer (15) and nut (16).

(7) Remove blanks from oil pressure transmitter (17) and tee-piece fitting.

(8) Install new 'O' ring seal (18) to oil pressure transmitter (17) and screw oil pressure transmitter (17) into tee-piece fitting (9).

(9) Safety the oil pressure transmitter (17) with lockwire.

(10) Connect electrical harness to oil pressure transmitter (17).



Oil pressure transmitter installation
Figure 405

6. Install oil pressure switch *(Figure 406)*

A. Parts List

Item No.	Component	Units per assembly
1	Tee-piece fitting	1
2	‘O’ ring seal	1
3	Nut	1
4	Tee-piece fitting	1
5	‘O’ ring seal	1
6	Oil pressure switch	1
7	‘O’ ring seal	1
8	Blank	1

B. Procedure

(1) Remove blanks from oil pressure switch (6), tee-piece fitting (4) and tee-piece fitting (1).

(2) Loosely screw down nut (3) onto tee-piece fitting (4) and install new ‘O’ ring seal to tee-piece fitting (4).

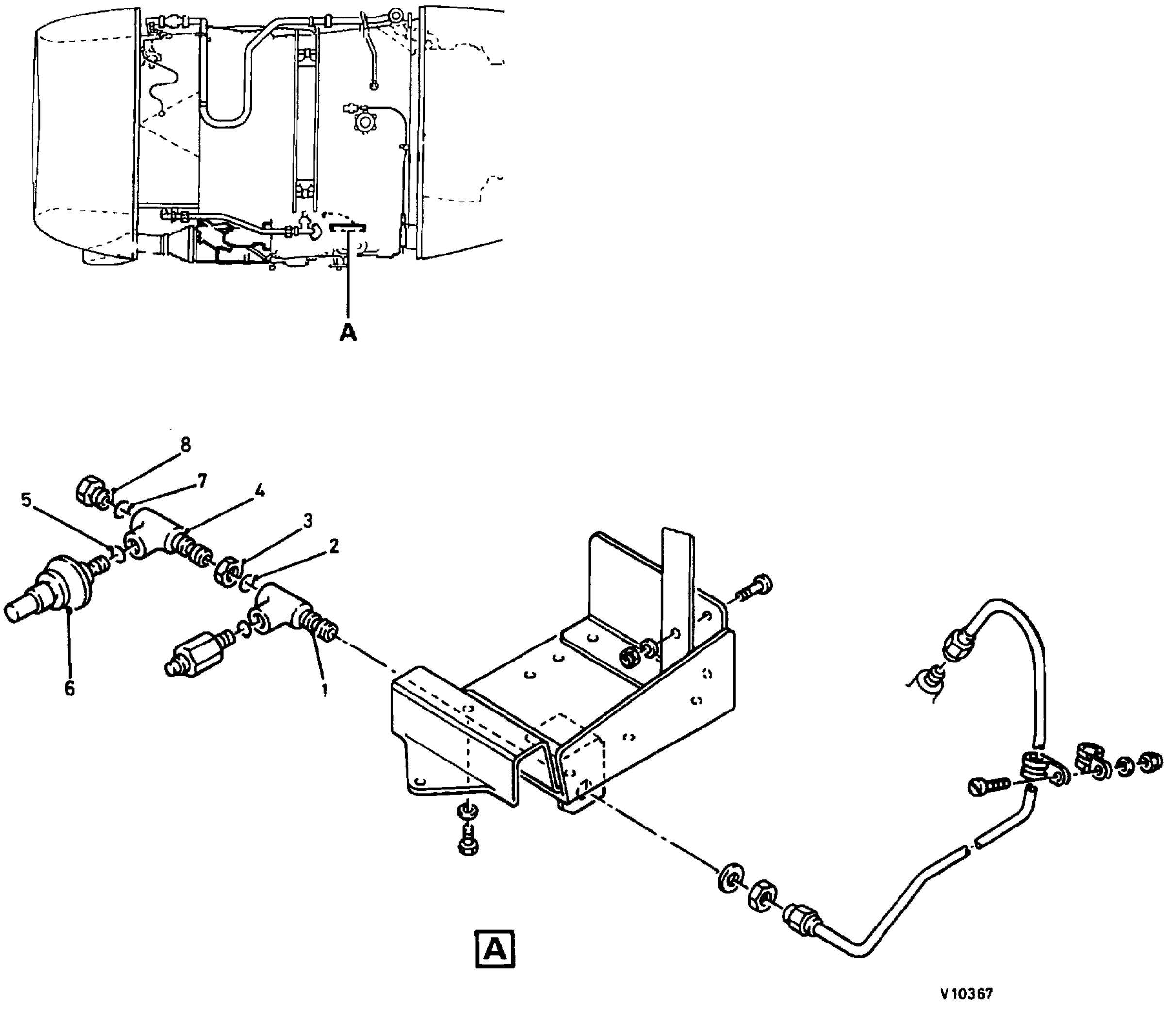
(3) Screw in tee-piece fitting (4) to tee-piece fitting (1).

(4) Install new ‘O’ ring seal (5) to oil pressure switch (6), screw oil pressure switch (6) into tee-piece fitting (4) and safety with lockwire.

(5) Set angle of oil pressure switch (6) to suit electrical harness, tighten down nut (3) on tee-piece fitting (1).

(6) Install ‘O’ ring seal (7) to blank (8), and screw blank (8) into tee-piece fitting (4).

(7) Connect electrical connector to oil pressure switch (6) and safety with lockwire.



Oil pressure switch installation
Figure 406

7. Install fuel flow transmitter *(Figure 407)*

A. Parts List

Item No.	Component	Units per assembly
1	Bracket assembly	Reference only
2	Fuel flow transmitter	1
3	Screw	4
4	Washer	4
5	Block support	4
6	Fuel pipe	Reference only
7	Fuel pipe	Reference only
8	Electrical connector	Reference only

B. Procedure

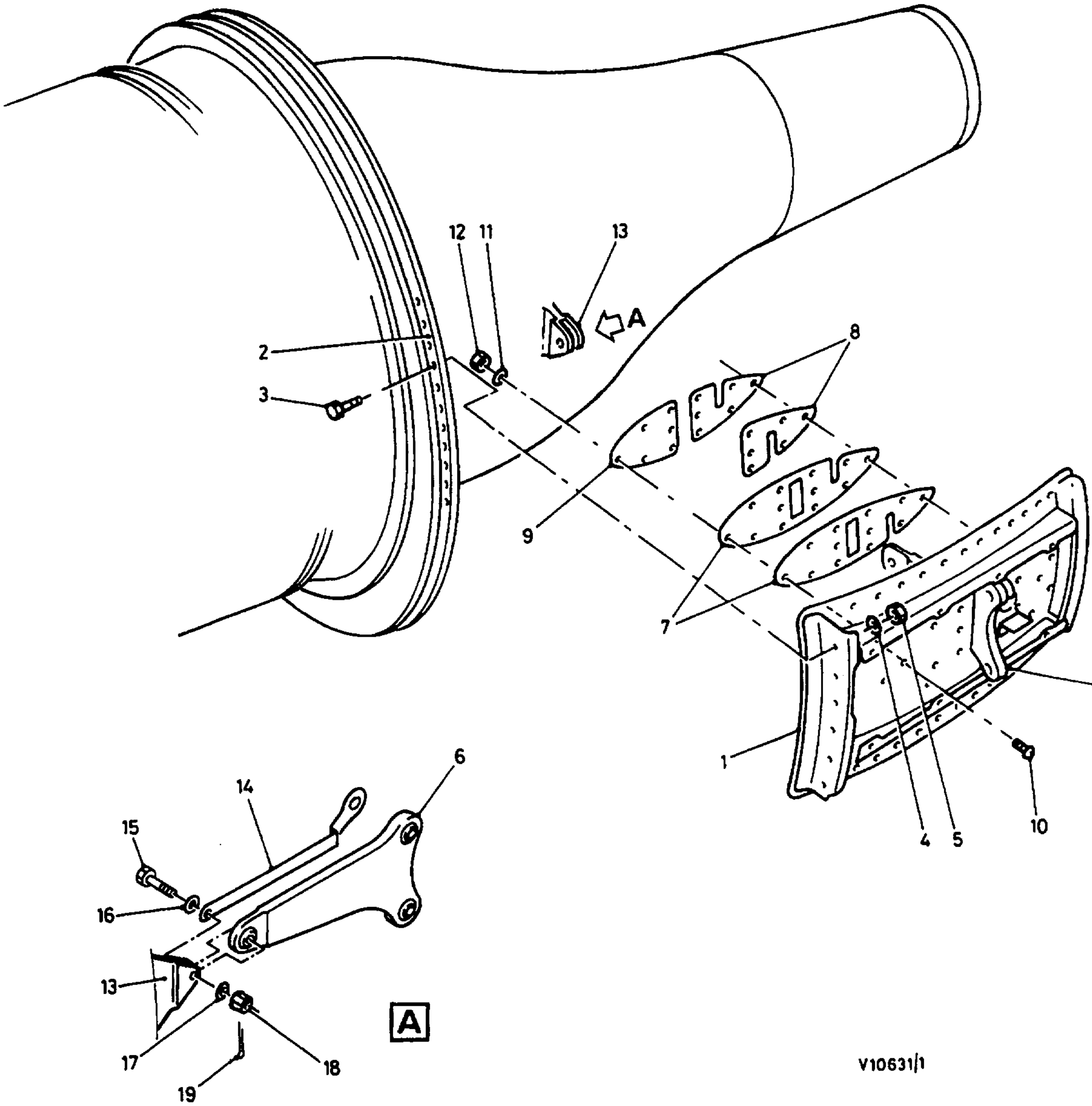
(1) Remove blanks from fuel flow transmitter (2) and fuel pipes (6), (7).

(2) Position fuel flow transmitter (2), with flow arrow indicating direction of fuel flow, with support blocks (5) on bracket assembly (1).

(3) Secure fuel flow transmitter (2) with screws (3) and washers (4).

(4) Connect the fuel pipes (6), (7) to the fuel flow transmitter (2) and safety with lockwire.

(5) Connect the electrical connector (8) to the fuel flow transmitter (2) and safety with lockwire.



Engine rear mount and island structure installation
Figure 406

(7) Install plain washer (17), slotted nut (18) and tighten to a torque of 60-80 lbf.in. making sure that one slot in the nut (18) aligns with the split pin hole in the bolt (15).

(8) Check that there is not less than 0.015 in. clearance between the threaded end of the bolt and engine casing. Should the clearance not be achieved install an additional plain washer (16) under the bolt head (15).

(9) Install a new split pin (19) through slotted nut (18) and attachment bolt (15) and secure.

(10) Position seals (7), fireproof heat shields (8), (9) and cable gaiter (supplied with island assembly) on the island structure (1) making sure that the slits in the fireproof heat shields (8), (9) face in alternate directions.

NOTE: Check that there is a minimum gap of 0.10 in. between the engine mounting fitting (6), the electrical cable harnesses and adjacent metal parts.

(11) Secure the seal assembly in position with bolts (10), washers (11) and nuts (12).

(12) Seal all gaps with sealant (Item 373) (See Chapter 71-00-06).

7. Install fan exhaust duct skin panels and HP bleed duct fairings *(Figure 407)*

A. Parts List

Item No.	Component	Units per assembly
1	Skin inner lower	1
2	Screw pan head	17
3	Washer	17
4	Skin inner upper	1
5	Screw pan head	20
6	Washer	20
7	Stud	8
8	Washer	8
9	Fairing HP air bleed	1
10	Screw pan head	6
11	Washer	6
12	Fairing HP air bleed	1
13	Washer	2
14	Screw pan head	2
15	Screw pan head	6
16	Washer	6

B. Procedure

(1) Position fan exhaust duct inner skin bottom panel (1) and loosely assemble to engine with screws (2) and washers (3).

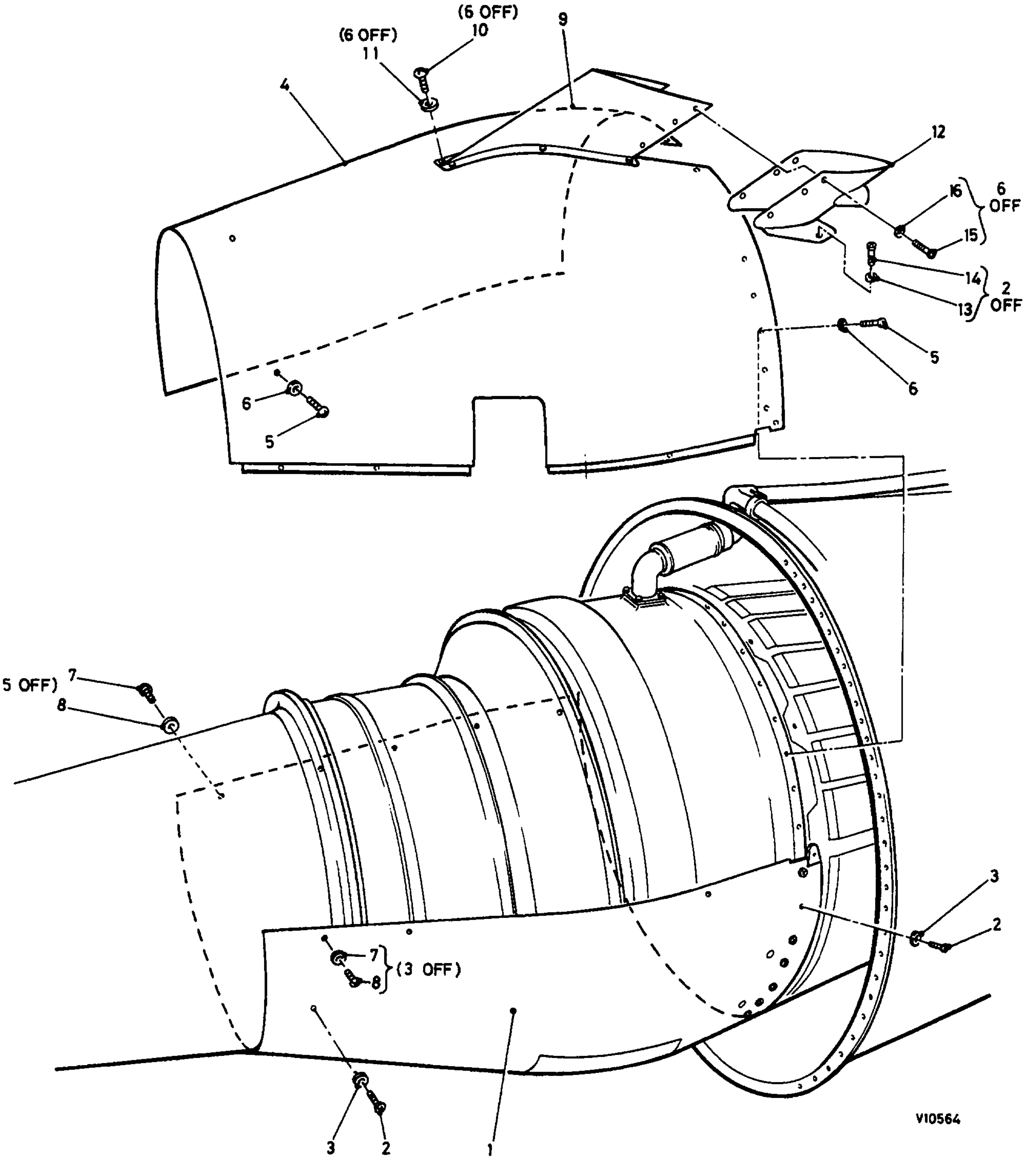
CAUTION: DO NOT FOUL THE FIRE DETECTION SYSTEM WHEN POSITIONING FAN EXHAUST DUCT INNER SKIN PANELS TO ENGINE.

(2) Position fan exhaust duct inner skin top panel (4) and loosely assemble to engine with screws (5) and washers (6).

(3) Secure the fan exhaust duct top (4) and bottom (1) inner skin panels with stud fasteners (7) and washers (8) along horizontal lap joint.

NOTE: Tighten all screws attaching fan exhaust duct inner skin panels progressively in sequence. Do not fully tighten any screw with other screws loose or missing.

(4) Tighten screws (2), with washers (3), and secure fan exhaust duct inner skin bottom panel (1) to engine. Tighten screws (5), with washers (6), and secure fan exhaust duct inner skin top panel (4) to engine.



Fan exhaust duct skin panels and HP bleed duct fairings installation
Figure 407

(5) Position and secure rear HP air bleed pipe fairing (9) with screws (10) and washers (11).

(6) Position and secure front HP air bleed pipe fairing (12) with screws (14) and washers (13).

(7) Secure front HP air bleed pipe fairing (12) to rear HP air bleed pipe fairing (9) with screws (15) and washers (16).

8. Install engine rear mount fairings *(Figure 408)*

A. Parts List

Item No.	Component	Units per assembly
3	Support fairing	1
4	Stud	6
5	Washer	6
6	Fairing engine aft mounting	1
7	Fairing engine aft mounting	1
8	Screw pan head	6
9	Washer	6
10	Stud	10

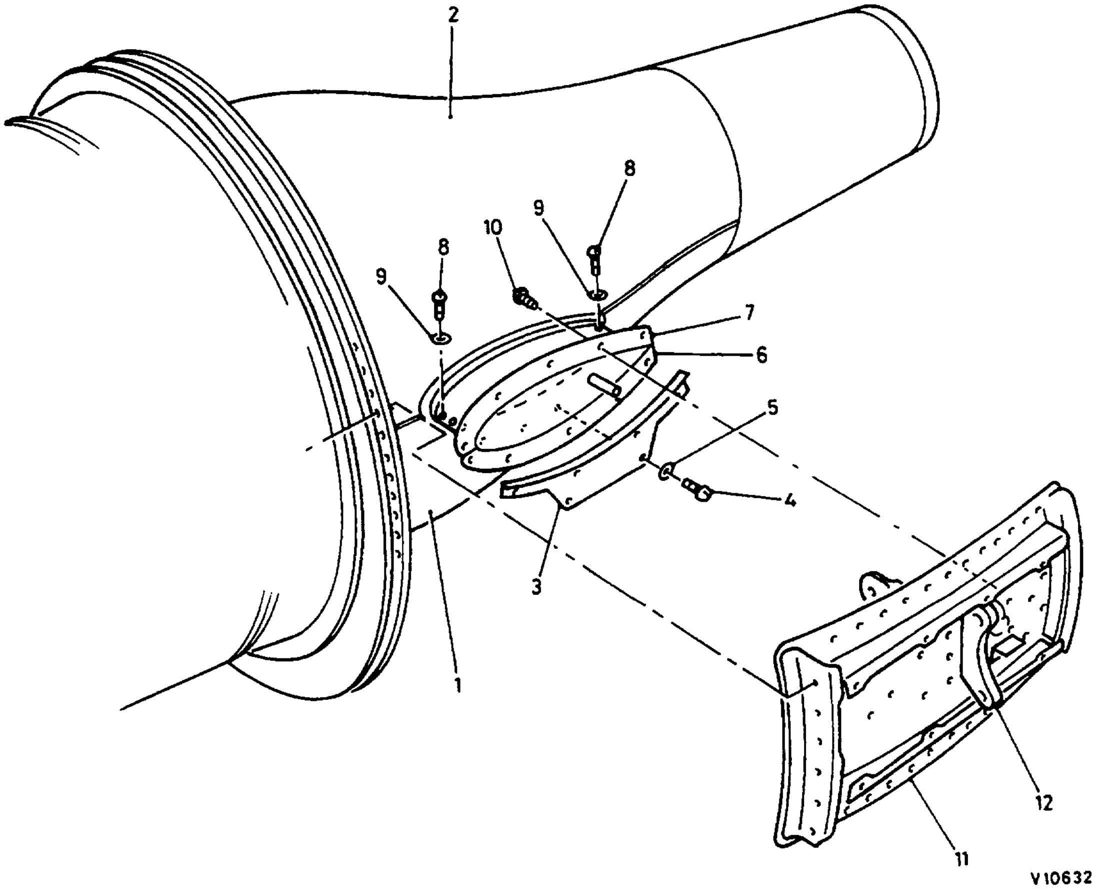
B. Procedure

(1) Position support fairing (3) on lower and upper engine fan exhaust duct inner skins (1), (2), and secure with studs (4) and washers (5).

(2) Position lower engine mounting fairing (6) onto fairing support (3), and position upper engine mounting fairing (7) enclosing rear engine mounting (12) and electrical harnesses.

(3) Secure upper (7) and lower engine mounting fairings (6) with screws (8) and washers (9).

(4) Secure upper (7) and lower engine mounting fairings (6) to island structure (11) with studs (10).



Engine rear mount fairings installation

Figure 408

9. Install aft cowl assembly *(Figure 409)*

A. Parts List

Item No.	Component	Units per assembly
2	Cowl aft outer	1
4	Bolt	44
5	Washer	44
6	Nut	44
7	Stud	28
9	Bolt	2
10	Washer	2
11	Stud	7
13	Cover	1
14	Cover	1
15	Stud	20

B. Procedure

(1) Apply a thin coat of sealant (Item 310) (See Chapter 71-00-06) to the engine fan duct rear flange (1) and the attachment flange of the aft cowl assembly (2).

(2) Position aft cowl assembly (2) over island structure (3) on to engine fan duct rear flange (1). Make sure that locating dowel is engaged.

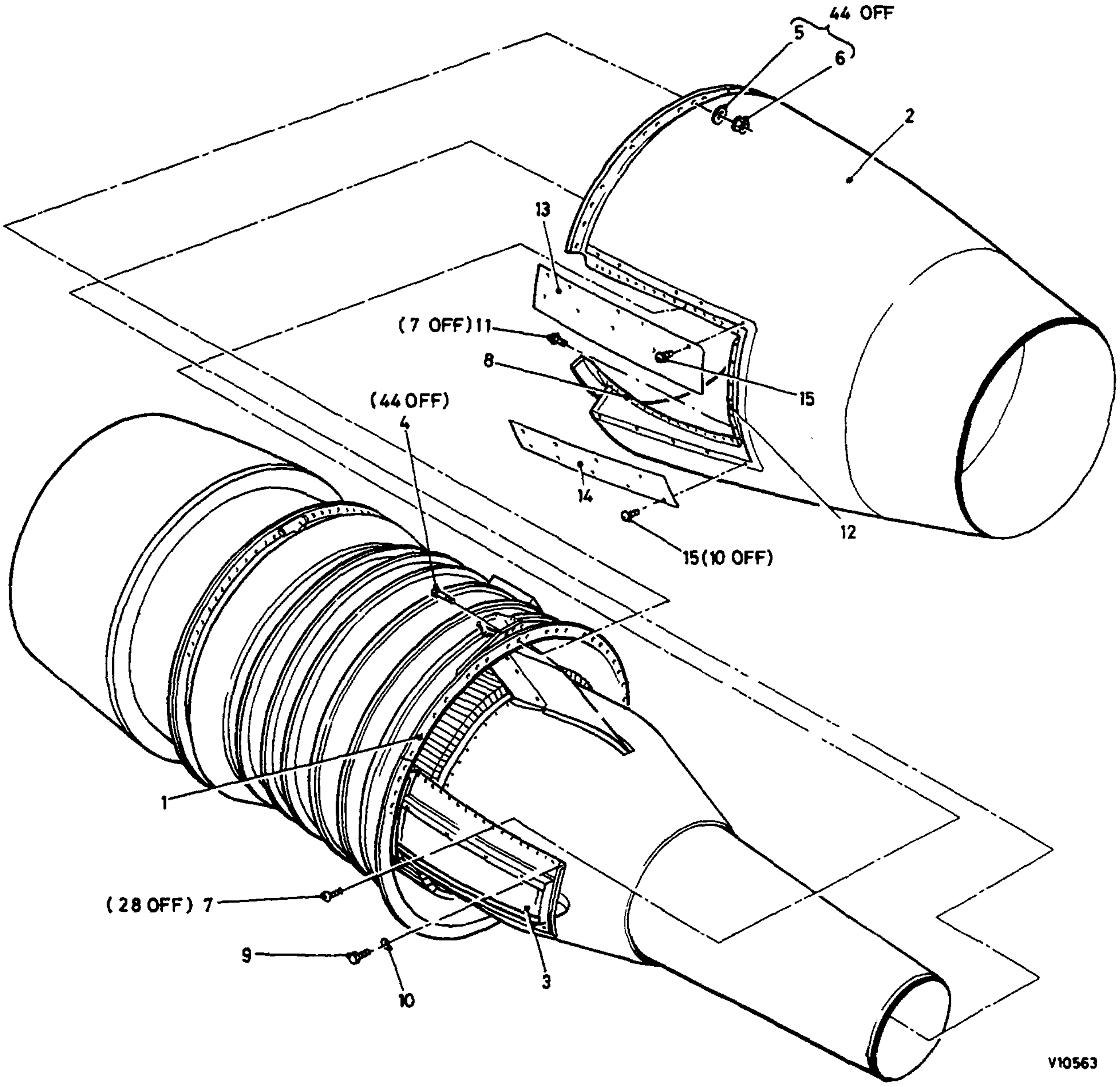
(3) Secure aft cowl assembly (2) to the fan duct rear flange (1) with bolts (4), washers (5) and nuts (6).

(4) Tighten bolts to a torque of 30-35 lbf.in.

(5) Secure island structure (3) to aft cowl inner skin (8) with quick release studs (7), bolts (9) and washers (10).

(6) Secure island assembly (3) to aft cowl inner skin rear angle (12) using quick release studs (11).

(7) Position and secure aft cowl upper (13) and lower (14) closing panels using quick release studs (15).



Aft cowl assembly installation

Figure 409

10. Install inlet cowl *(Figure 410)*

A. Parts List

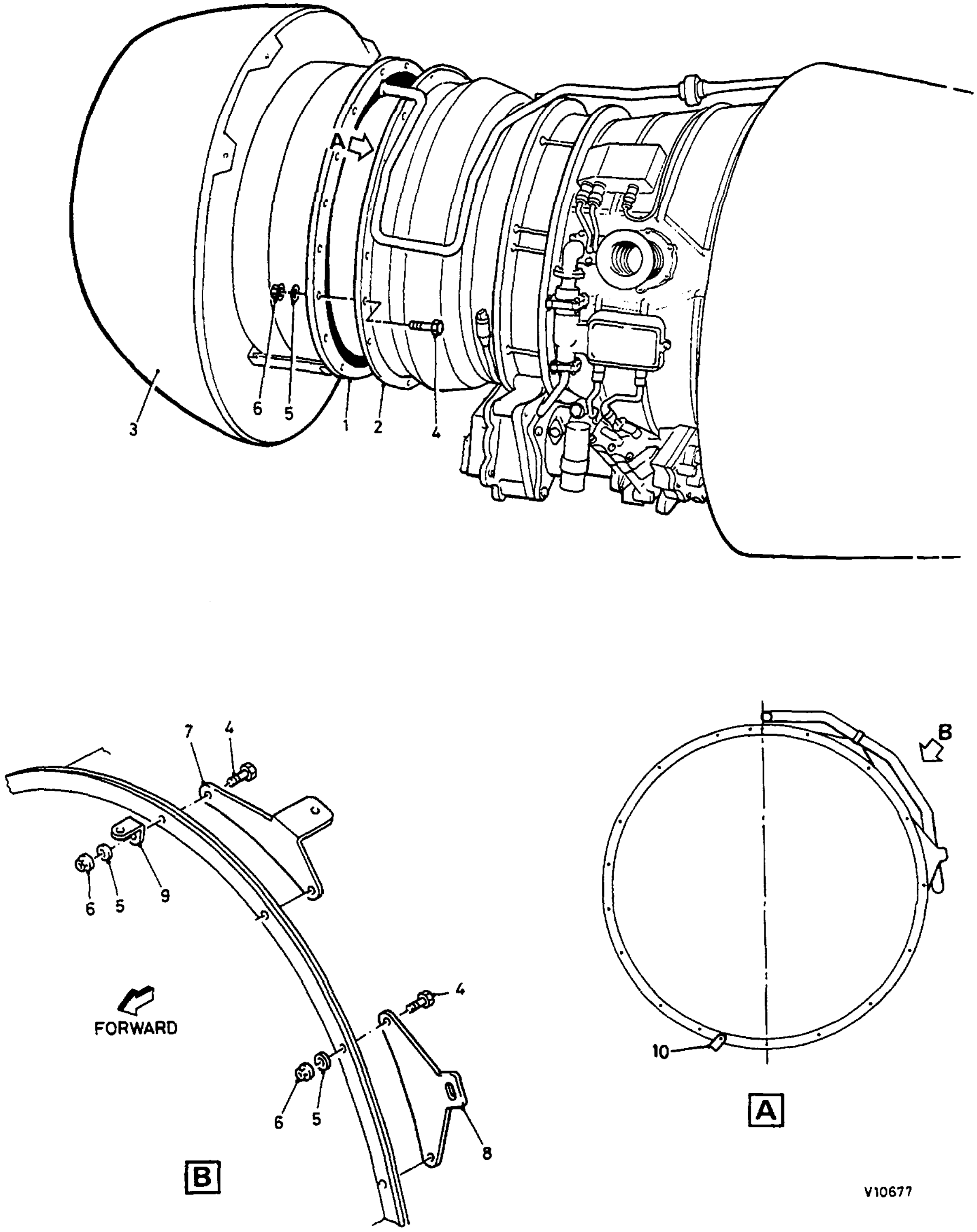
Item No.	Component	Units per assembly
3	Inlet cowl assembly	1
4	Bolt	18
5	Washer	18
6	Nut	18
9	Angle bracket	1

B. Procedure

(1) Apply a thin coat of sealant (Item 310) (See Chapter 71-00-06) to the engine flange (2) and the inlet cowl flange (1).

(2) Position inlet cowl (3) on to cowl fan casing attachment flange (2) engaging dowel in locating hole.

(3) Secure inlet cowl (3) to engine using bolts (4), washers (5) and nuts (6). Make sure HP anti-icing pipe mounting brackets, (7), (8), are located in positions shown. Make sure angle bracket (9) is secured as shown and that starter/generator bonding strap (10) is assembled in position shown, in accordance with procedures given in Chapter 71-00-09: Method 2.



Inlet cowl installation
Figure 410

11. Install inlet cowl services *(Figure 411)*

A. Parts List

Item No.	Component	Units per assembly
1	Clamp	1
2	Valve shut-off	1
3	Clamp	1
7	Bolt	2
8	Washer	2
9	Reducer	1
10	'O' ring	1
11	Tube assembly	1
12	P-clip	1
13	Washer	1
14	Screw	1
15	Switch	1
16	Nut	1
17	Washer	1
18	Tube assembly	1

B. Procedure

(1) Lubricate threads on 'V' clamp (1) with clean engine oil (Item 137) (See Chapter 71-00-06). Put the anti-icing shut off valve (2) in position and secure to inlet cowl anti-icing pipe with 'V' clamp (1). Tighten the 'V' clamp nut (1) to a torque of 35 to 45 lbf. in.

(2) Lubricate threads on 'V' clamp (3) with clean engine oil (Item 137) (See Chapter 71-00-06). Install on HP intake anti-icing pipe from engine and inlet side of anti-icing shut off valve (2) Tighten the 'V' clamp nut (3) to a torque of 35 to 45 lbf. in.

(3) Position Allied Signal supplied pressure and temperature sensor (5) with gasket (6) and secure with bolts (7) and washers (8).

(4) Tighten bolts to a torque of 20-30 lbf. ins. and safety with lockwire.

(5) Install 'O' ring seal (10) to reducer and install reducer (9) to pressure and temperature sensor (5).

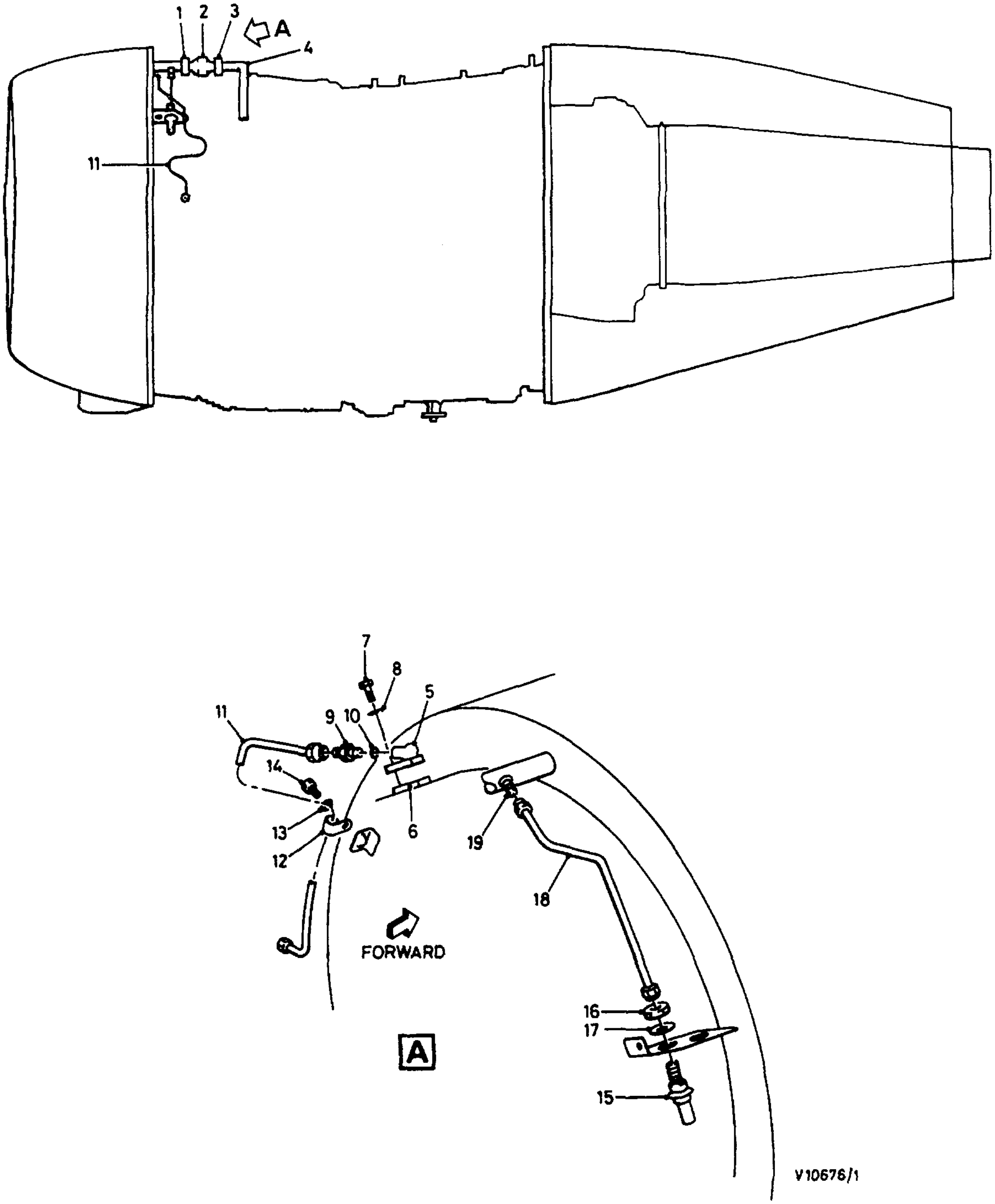
(6) Install tube assembly (11) to reducer (9) on pressure and temperature sensor (5).

(7) Secure tube assembly (11) with P-clip (12), washer (13) and screw (14).

(8) Position anti-icing pressure switch (15) into existing bracket on inlet cowl and secure with nut (16) and washer (17).

(9) Install tube assembly (18) from anti-icing pressure switch (15) to tapping on *inlet cowl anti-icing* pipe (19).

(10) Connect electrical connector to the engine inlet pressure and temperature sensor (5) coded P4.



Inlet cowl services installation
Figure 411

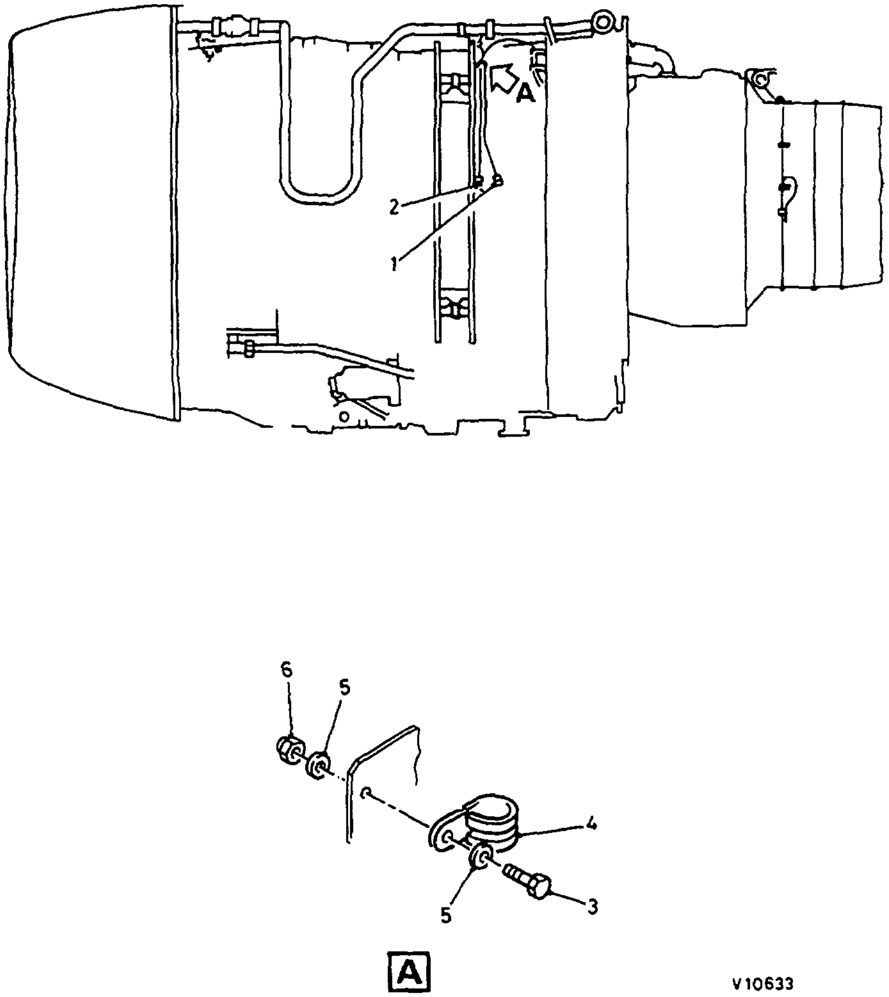
12. Install TB1, TB2 electrical harnesses *(Figure 412)*

A. Parts List

Item No.	Component	Units per assembly
3	Bolt	1
4	Clip	1
5	Washer	2
6	Nut	1

B. Procedure

(1) Secure engine electrical harnesses TB1 (1) and TB2 (2) to engine, from the vertical centre-line of the engine down to a point adjacent to the installed position of pylon plug breaks, with bolt (3), clip (4), washers (5) and nut (6).



TB1, TB2 electrical harnesses installation
Figure 412

13. Install hydraulic pump flexible pipes *(Figure 413)*

A. Parts list

Item No.	Component	Units per assembly
1	Pipe	1
2	Pipe	1
3	Pipe	1
4	Clip	1
5	Clip	1
6	Clip	1
7	Screw	2
8	Washer	2

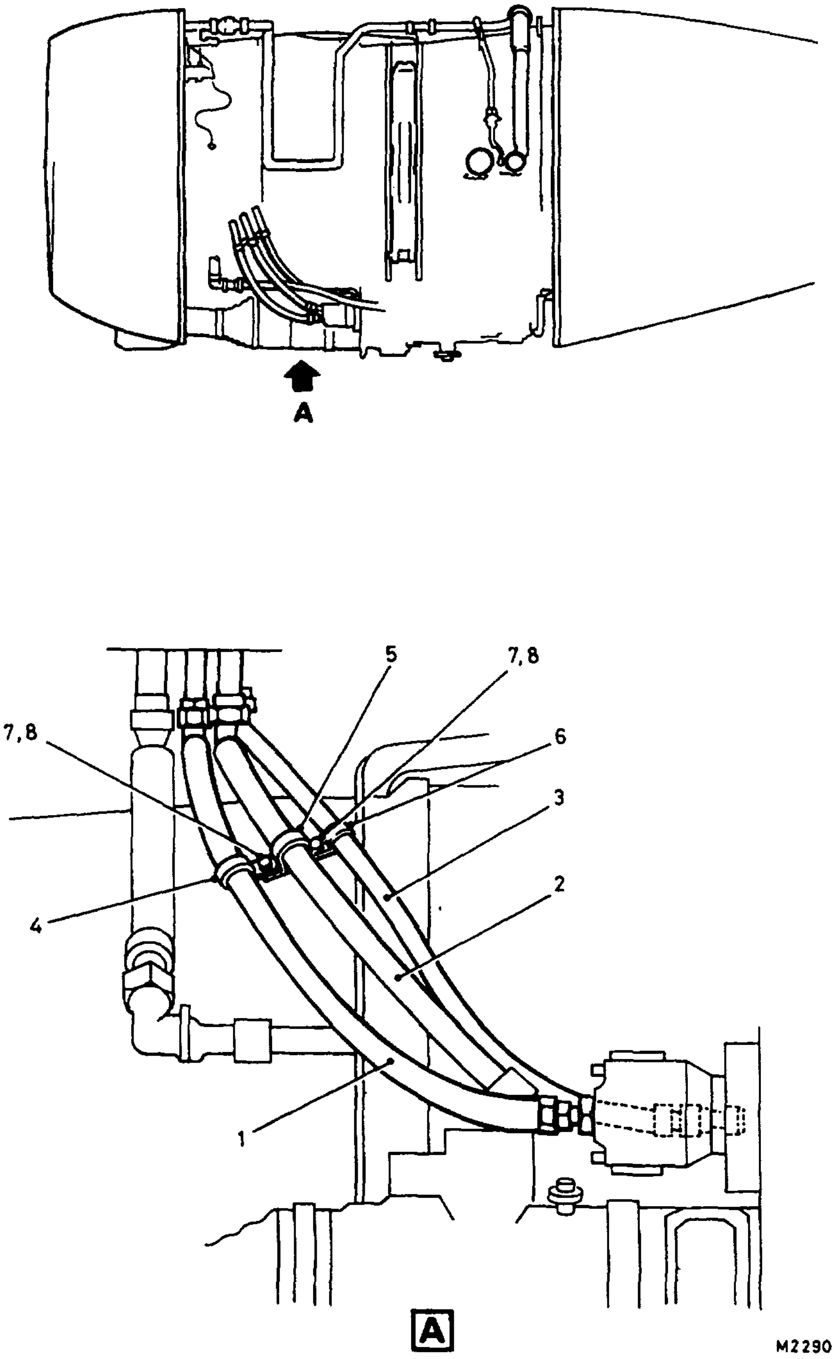
B. Procedure

(1) Remove blanks from hydraulic pump and hydraulic pipes (1), (2) and (3).

(2) Install hydraulic pipes (1), (2) and (3) to hydraulic pump.

(3) Secure hydraulic pipes (1) and (2) to engine mounted bracket with clips (4), (5), screw (7) and washer (8).

(4) Secure hydraulic pipe (3) to engine mounted bracket with clip (6), screw (7) and washer (8).



Hydraulic pump flexible pipes - installation
Figure 413

14. Install fuel pressure switch fuel pipe *(Figure 414)*

A. Parts List

Item No.	Component	Units per assembly
1	Elbow	1
2	Nut	1
3	Washer	1
4	Tube assembly	1

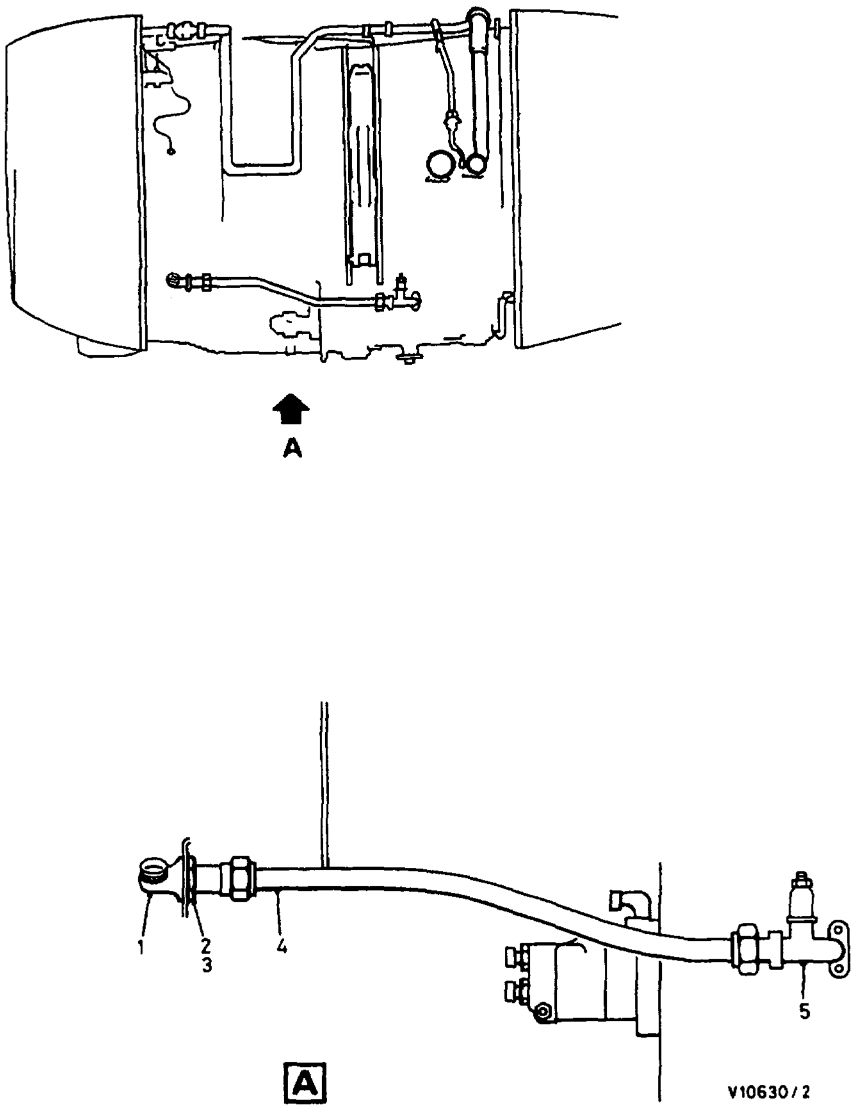
B. Procedure

(1) Remove blanks from bracket mounted elbow (1) and loosely assemble on existing bracket with nut (2) and washer (3).

(2) Assemble fuel pipe assembly (4) between bracket mounted elbow (1) and fuel pressure switch elbow fitting (5).

(3) Secure bracket mounted elbow (1) with nut (2).

(4) Secure fuel pipe assembly (4) at bracket mounted elbow (1) and fuel pressure switch elbow fitting (5).



Fuel pressure switch fuel pipe installation

Figure 414

15. Install starter/generator *(Figure 415)*

A. Parts List

Item No.	Component	Units per assembly
1	V-clamp	1
3	Starter/generator	1
4	Duct	1
5	Clamp	1
7	Clamp	1

B. Procedure

(1) Make sure that QAD adaptor mounting flange (2) and clamping surfaces are clean and free from damage.

CAUTION: DO NOT LUBRICATE DRIVE SHAFT SPLINES. ASSEMBLE DRY.

(2) Apply grease (Item 054) (See Chapter 71-00-06) to the inside mating faces of starter/generator 'V' clamp (1) and position the 'V' clamp on starter/generator (3).

CAUTION: KEEP STARTER/GENERATOR FLUSH AGAINST ADAPTOR DURING INSTALLATION, DO NOT PERMIT UNIT TO HANG LOOSELY, OR WITHOUT V-CLAMP BEING FULLY TIGHTENED. OTHERWISE UNDUE BENDING FORCE ON DRIVE SHAFT CAN RESULT IN DAMAGE AND IN-FLIGHT FAILURE.

(3) Supporting weight of starter/generator (3), position into engine accessory gearbox until fully engaged and flush up against QAD adaptor (2).

CAUTION: POSITION OF STARTER/GENERATOR V-CLAMP MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR.

(4) Secure starter/generator (3) with V-clamp (1).

(5) Tighten V-clamp nut to a torque 70-90 lbf.in.

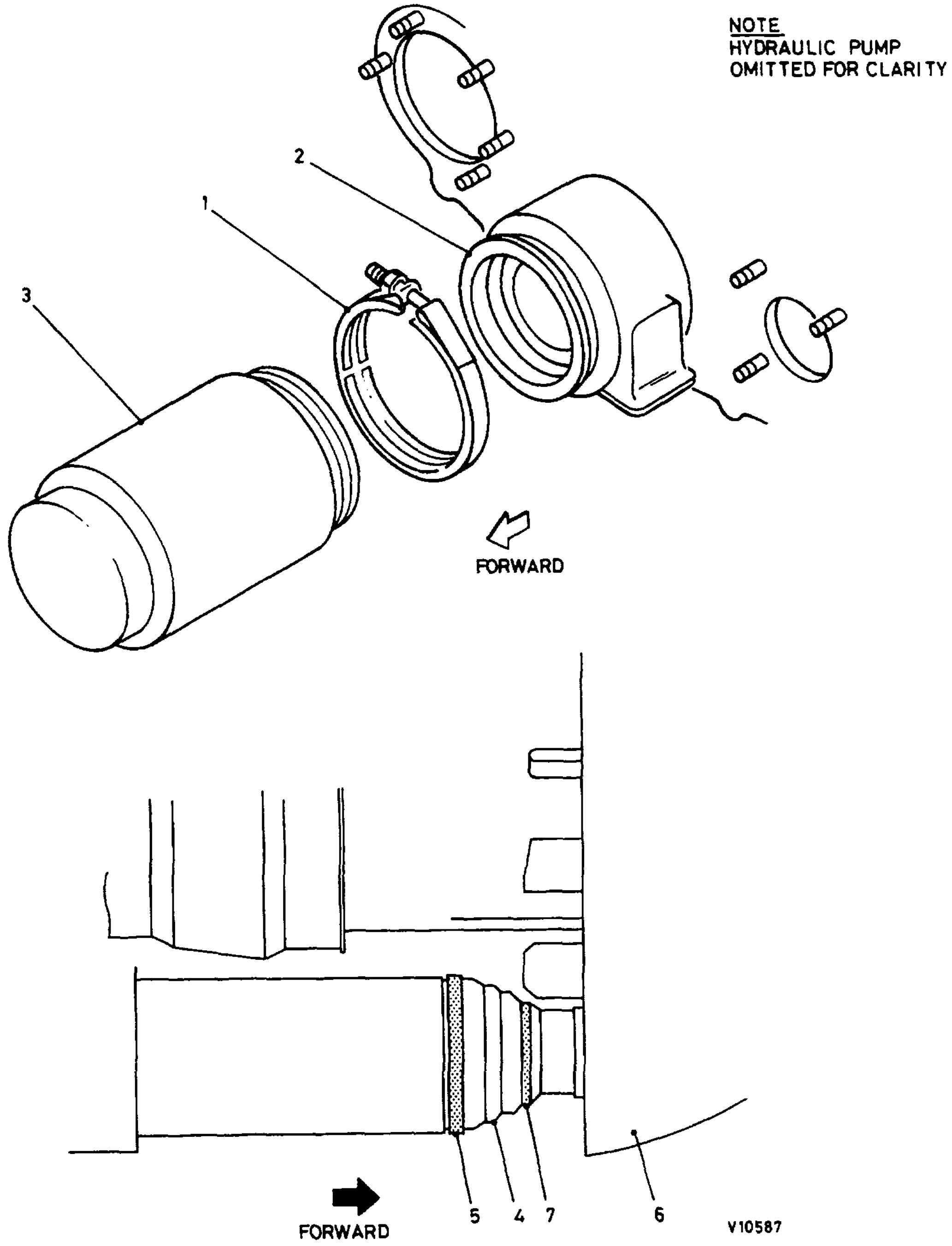
(6) Loosen V-clamp nut one half turn.

(7) Tighten V-clamp nut again to a torque 70-90 lbf.in.

(8) Repeat paragraphs (6) and (7) until nut ceases to advance.

CAUTION: POSITION OF FLEXIBLE COOLING AIR INLET DUCT CLAMPS MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR

(9) Install starter/generator flexible cooling air inlet duct (4) and secure to starter/generator (3) with clamp (5), and secure to inlet cowl (6) with clamp (7).



Starter generator installation

Figure 415

16. Install AC generator *(Figure 416)*

A. Parts List

Item No.	Component	Units per assembly
1	V-clamp	1
3	AC generator	1
5	Clamp	1
6	Inlet assembly	1

B. Procedure

(1) Make sure that AC generator adaptor mounting flange (2) and clamping surfaces are clean and free from damage.

CAUTION: DO NOT LUBRICATE DRIVE SHAFT SPLINES: ASSEMBLE DRY.

(2) Apply grease (Item 054) (See Chapter 71-00-06) to the inside mating faces of AC generator 'V' clamp (1) and position the 'V' clamp on AC generator (3).

CAUTION: WITH LOCATING DOWEL ENGAGED, KEEP AC GENERATOR FLUSH UP AGAINST ADAPTOR DURING INSTALLATION AND DO NOT PERMIT UNIT TO HANG LOOSELY OR WITHOUT V-CLAMP BEING FULLY TIGHTENED. OTHERWISE UNDUE BENDING FORCE ON DRIVE SHAFT CAN RESULT IN DAMAGE AND IN-FLIGHT FAILURE.

(3) Supporting weight of AC generator (3), position into engine accessory gearbox until fully engaged and flush up against adaptor (2).

CAUTION: POSITION OF AC GENERATOR V-CLAMP MUST BE SUCH THAT NO FOULING OCCURS WHEN CLOSING THE LOWER ACCESS DOOR.

(4) Secure AC generator (3) with V-clamp (1).

(5) Tighten V-clamp nut to a torque of 70-90 lbf.in.

(6) Loosen V-clamp nut one half turn.

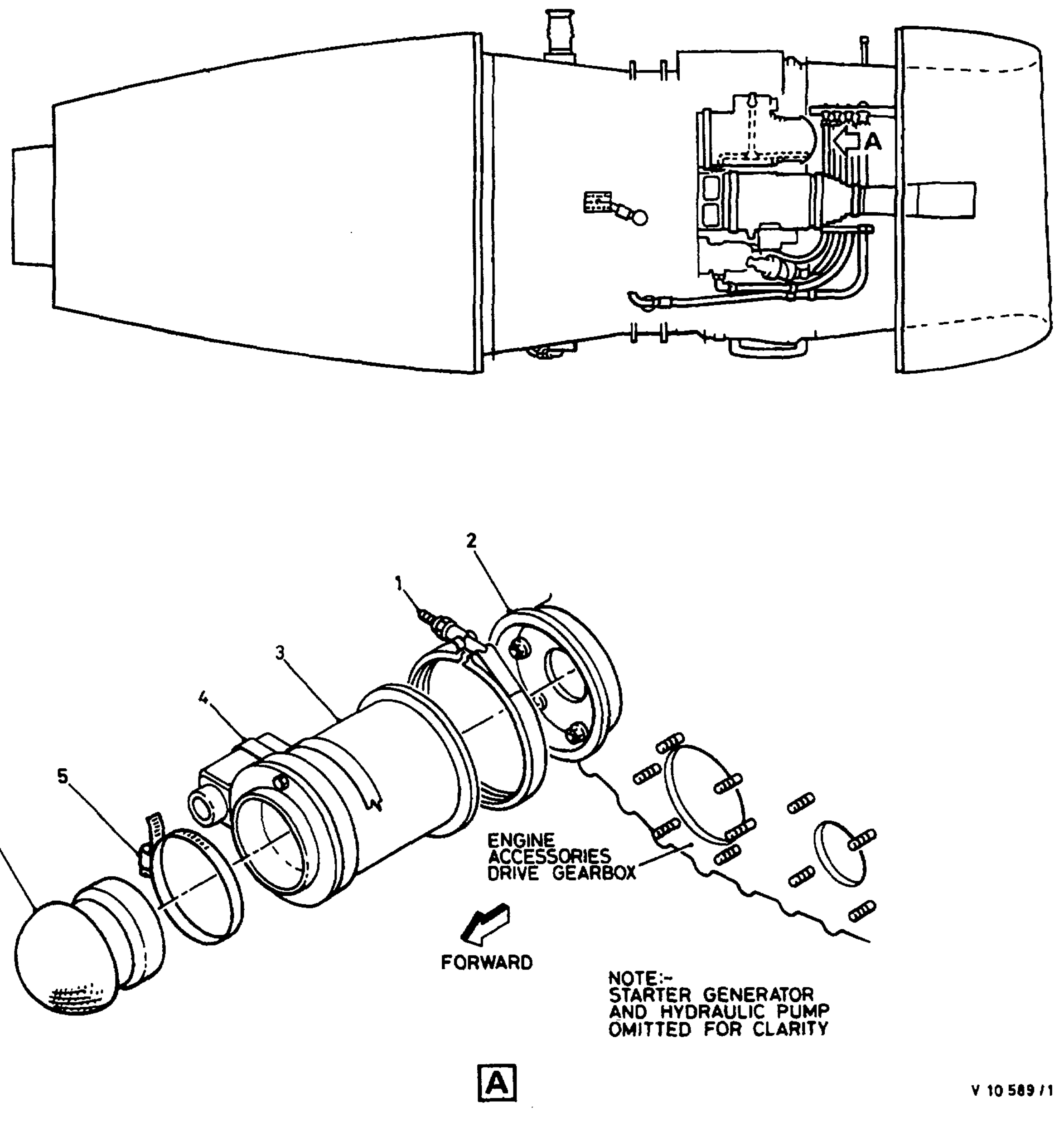
(7) Tighten V-clamp nut again to a torque of 70-90 lbf.in.

(8) Repeat paragraphs (6) and (7) until nut ceases to advance.

(9) Connect and secure bonding strap (4) to AC generator earth stud, in accordance with procedures given in Chapter 71-00-09: Method 22.

(10) Loosely assemble clamp (5) onto intake assembly (6) and position intake assembly (6) with clamp (5) onto AC generator (3) flange.

(11) Secure clamp (5), with intake assembly (6), to AC generator (3).


A
2
1
3
4
5
6
ENGINE ACCESSORIES DRIVE GEARBOX
FORWARD
NOTE:-
STARTER GENERATOR AND HYDRAULIC PUMP OMITTED FOR CLARITY
A
V 10 589 /1

AC generator installation
Figure 416

17. Install forward engine mounting assemblies *(Figure 417)*

A. Parts List

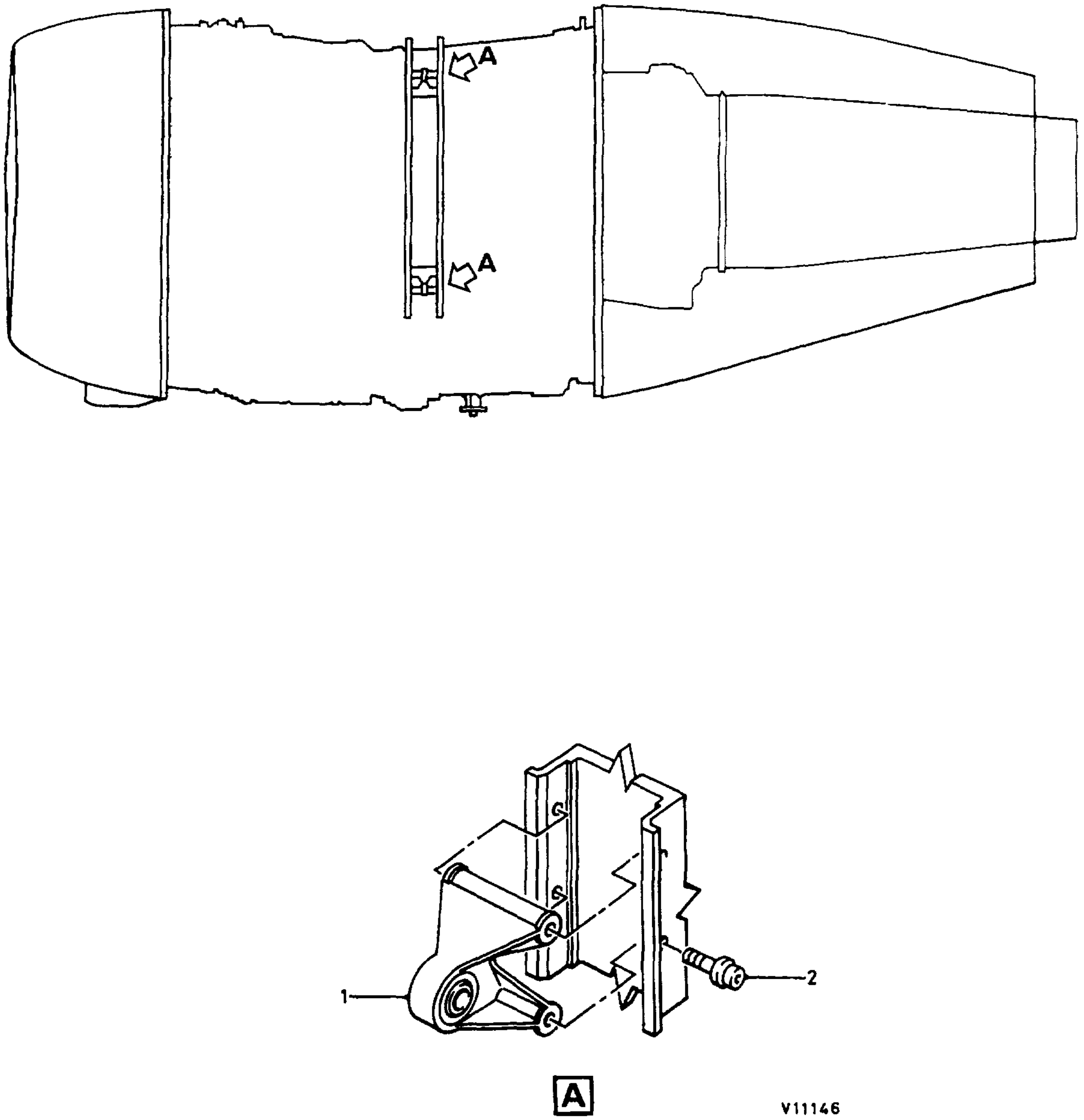
Item No.	Component	Units per assembly
1	Mounting assembly	2
2	Mounting bolt	8

B. Procedure

(1) Position top and bottom front engine mount attachment assemblies (1) between engine flanges.

(2) Secure attachment assemblies with attachment bolts (2).

(3) Tighten attachment bolts (2) to a torque of 350-385 lbf.in. and safety with lockwire.



Forward engine mounting assemblies installation
Figure 417

18. Final assembly

A. On completion of build, perform the following:

(1) Make certain working area is clean, and clear of tools and miscellaneous equipment.

(2) Check intake and exhaust tube area for loose articles and install blanks.

(3) Install suitable blanks to all pipe ends and protective caps to exposed electrical leads.

(4) Check all build items for security of attachment, correct locking, and correct routing of pipes, ducts and cables.

RIGHT HAND POWER PLANT STANDARD

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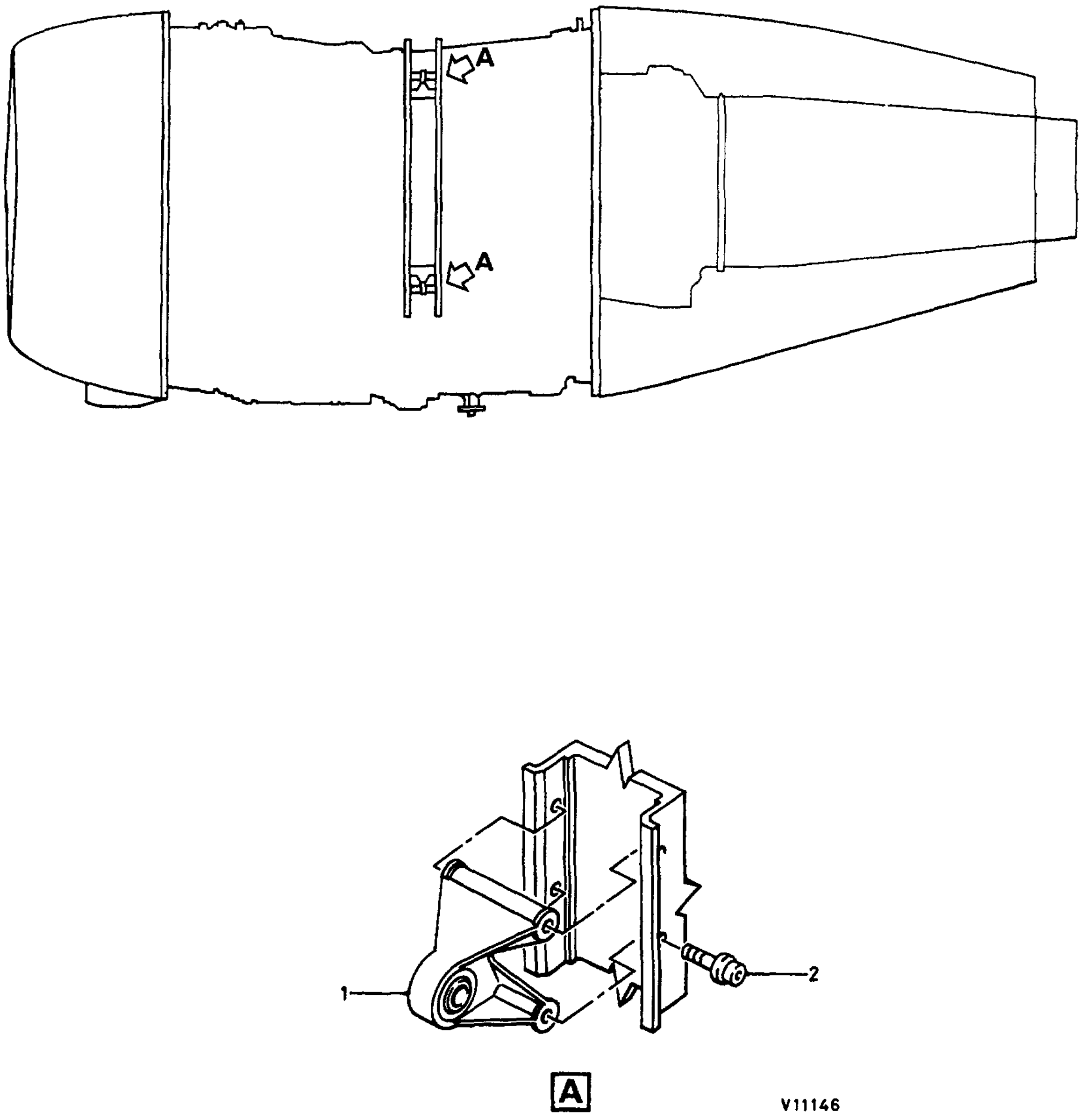
1. Remove forward engine mounting assemblies *(Figure 401)*

A. Procedure

(1) Remove eight bolts (2) securing top and bottom front engine mount attachment assemblies (1) to the engine flanges.

(2) Remove top and bottom attachment assemblies (1) from the engine flanges.



Forward engine mounting assemblies removal
Figure 401

2. Remove AC generator *(Figure 402)*

A. Procedure

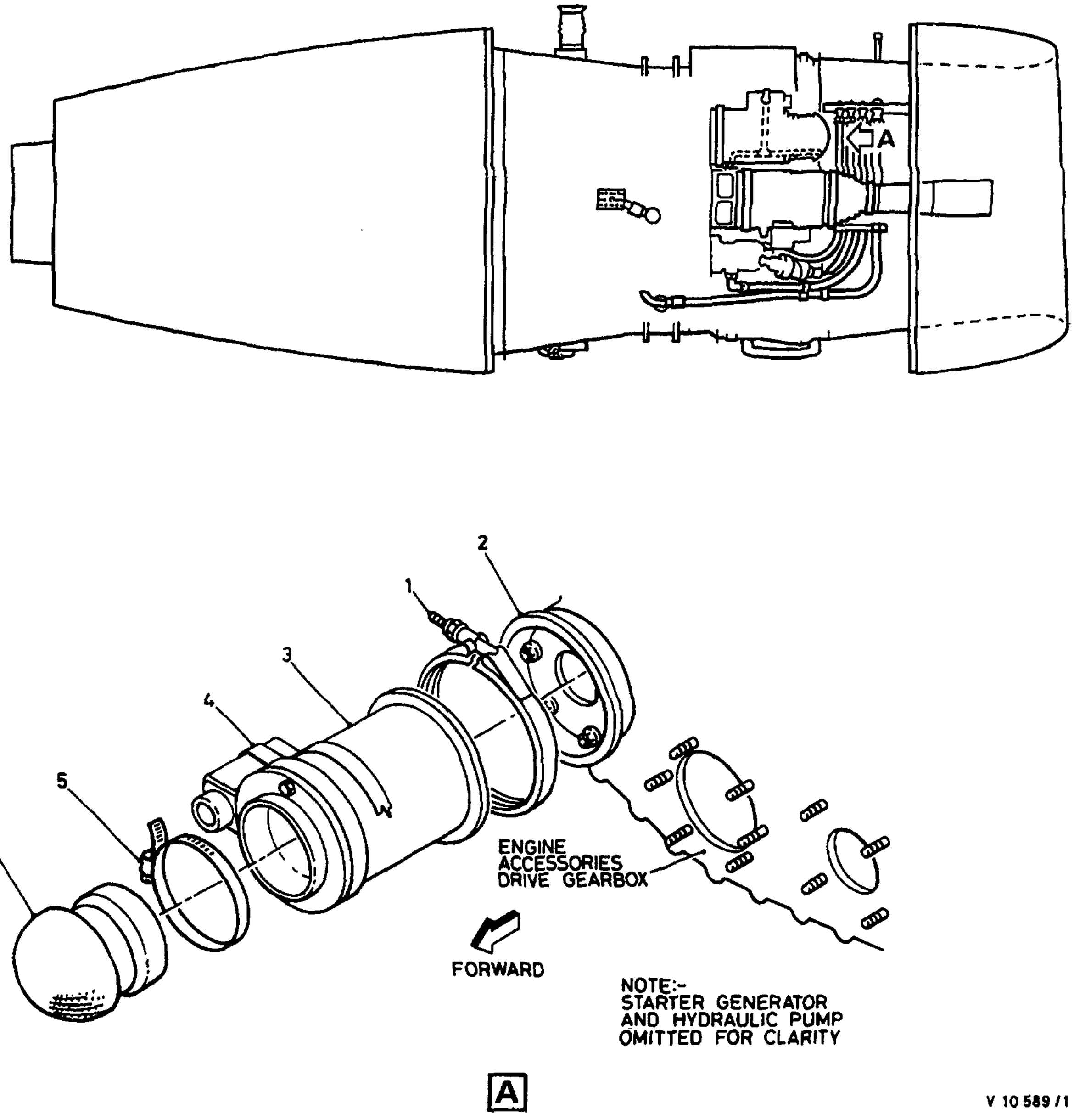
(1) Disconnect bonding strap (4) from AC generator earth stud.

WARNING: AC GENERATOR WEIGHS 20 LBs.

(2) Support AC generator (3), release V-clamp (1) and withdraw generator (3) keeping it aligned until its drive shaft disengages. Remove AC generator (3) complete with air intake mesh guard (6).

(3) Blank off aperture over AC generator mounting adaptor (2).

(4) Loosen clamp (5) and remove air intake mesh guard assembly (6), with clamp (1), from AC generator (3).



NOTE:-
STARTER GENERATOR AND HYDRAULIC PUMP OMITTED FOR CLARITY

AC generator removal
Figure 402

3. Remove starter/generator *(Figure 403)*

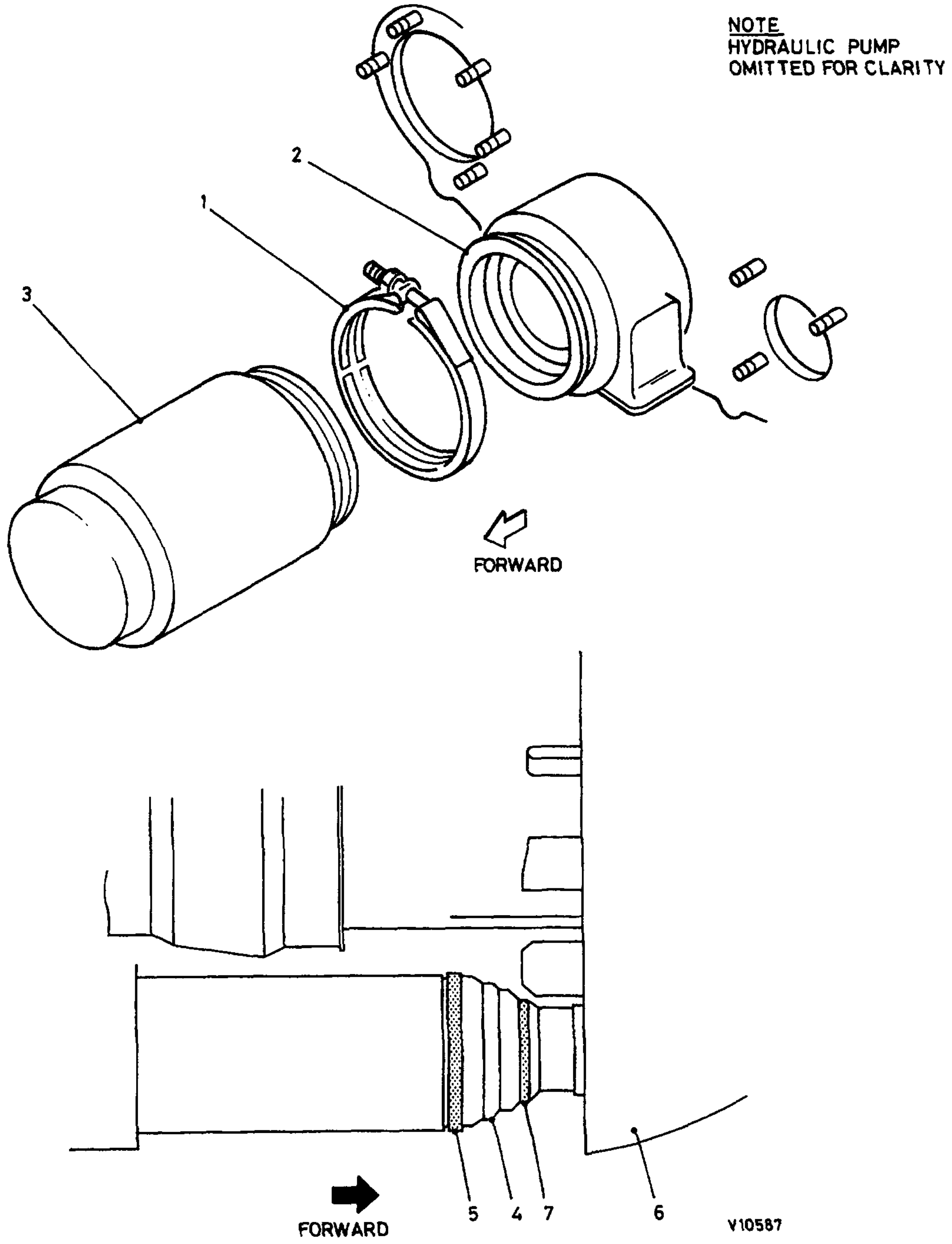
A. Procedure

(1) Release clamp (7) securing starter/generator flexible cooling air inlet duct (4) to inlet cowl (6), and release clamp (5) securing flexible cooling air inlet duct (4) to starter generator (3). Remove air inlet duct (4).

WARNING: STARTER/GENERATOR WEIGHS APPROXIMATELY 37 LBs.

(2) Support starter/generator (3), release V-clamp (1) and withdraw starter/generator (3) keeping it aligned until its drive shaft disengages. Remove starter/generator (3).

(3) Blank off aperture over starter/generator QAD adaptor (2).



Starter/generator removal
Figure 403

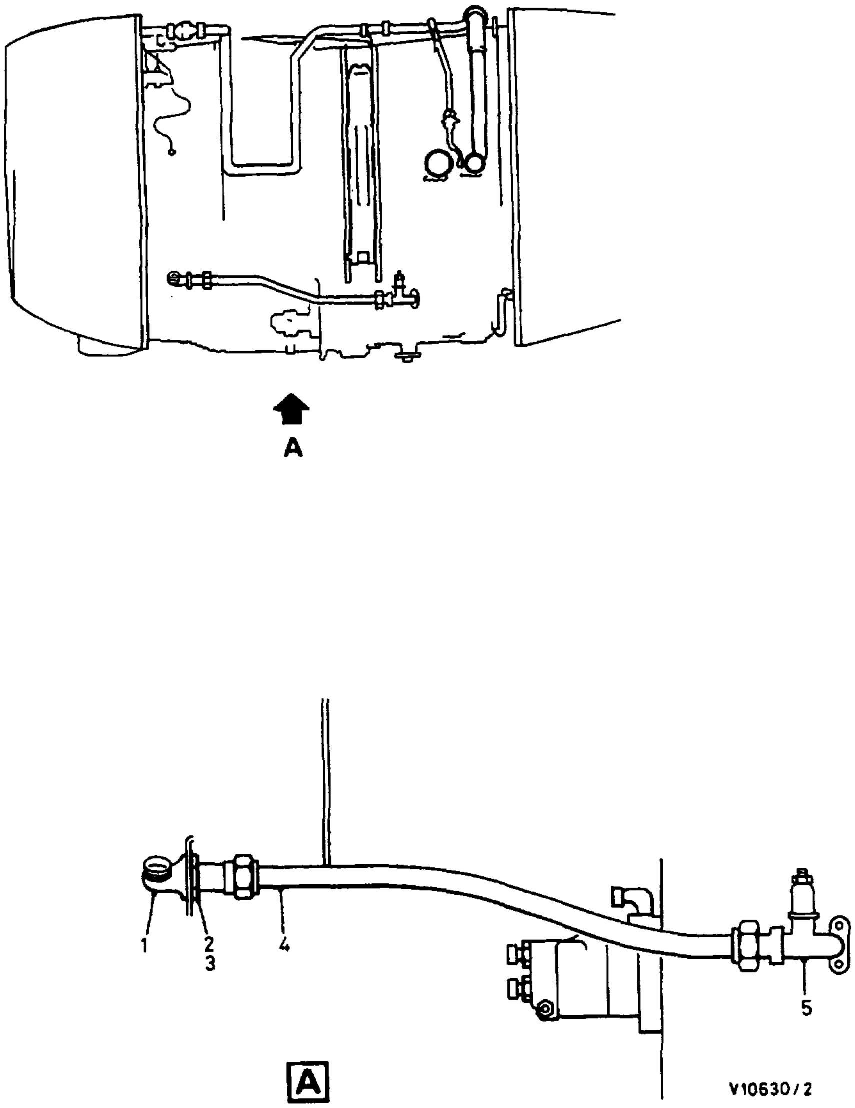
4. Remove fuel pressure switch fuel pipe *(Figure 404)*

A. Procedure

(1) Loosen nut (2) on bracket mounted elbow (1).

(2) Remove fuel pipe assembly (4) from bracket mounted elbow (1) and fuel pressure switch elbow fitting (5). Put blanks on fuel pipe assembly (4) and fuel pressure switch elbow fitting (5).

(3) Remove bracket mounted elbow (1), washer (3) and nut (2) from existing bracket. Put blanks on bracket mounted elbow (1).



Fuel pressure switch fuel pipe removal
Figure 404

5. Remove hydraulic pump flexible pipes *(Figure 405)*

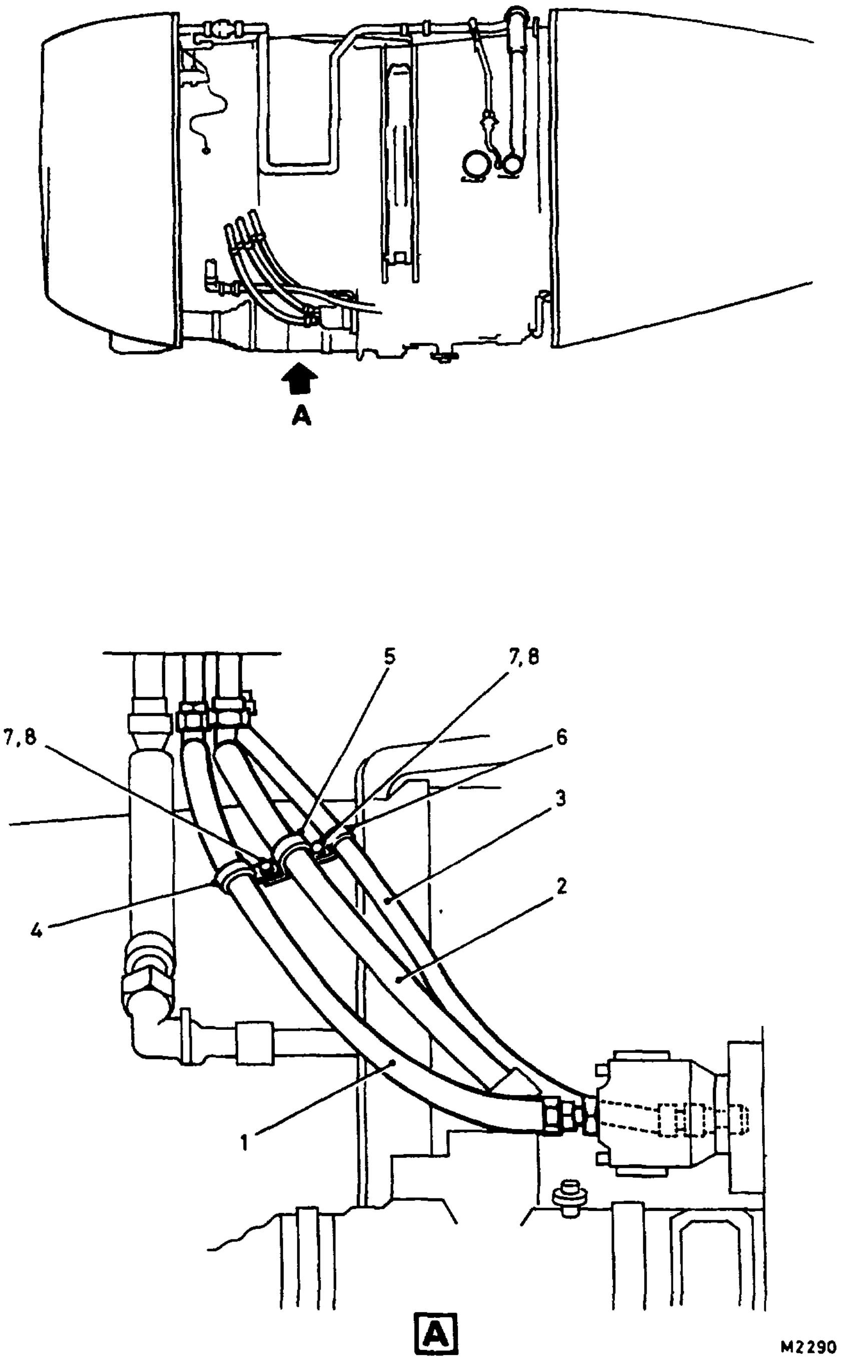
A. Procedure

(1) Remove screw (7), washer (8) and clip (6) from hydraulic pipe (3).

(2) Remove screw (7), washer (8) and clips (4) (5) from hydraulic pipes (1) (2).

(3) Remove hydraulic pipes (1), (2) and (3) from hydraulic pump.

(4) Put blanks on hydraulic pump and hydraulic pipes (1), (2) and (3) open ends.

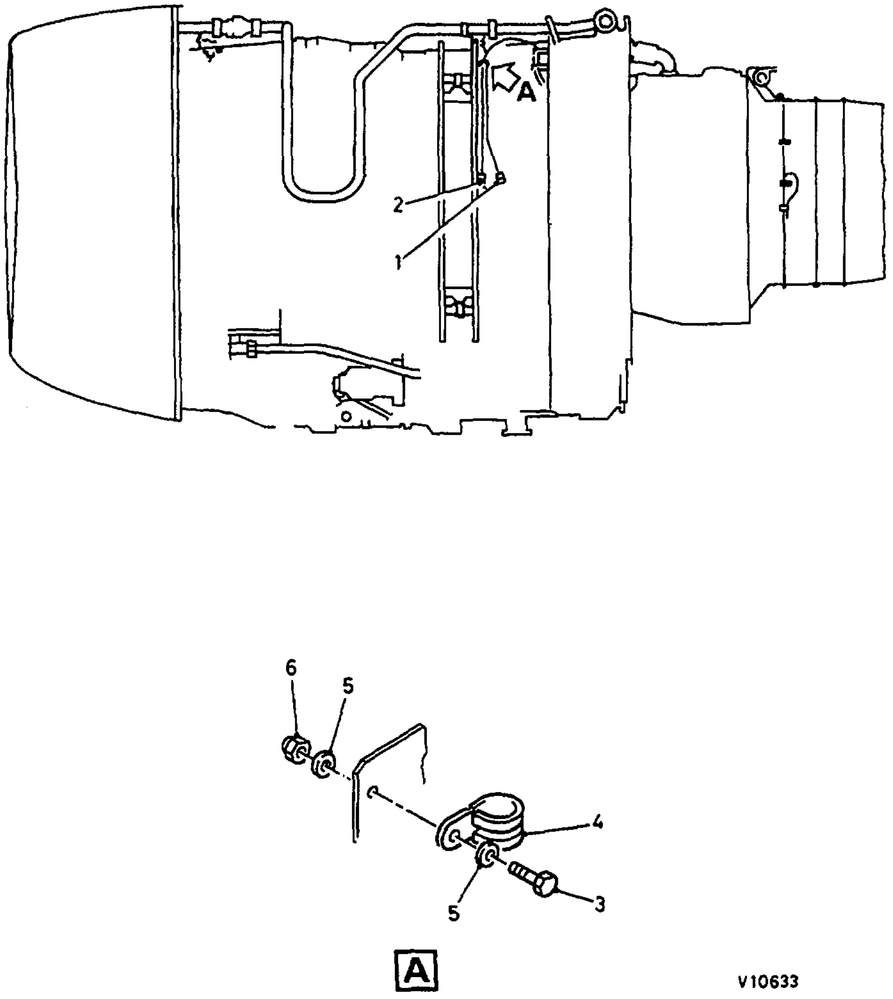


Hydraulic pump flexible pipes - removal
Figure 405

6. Remove TB1, TB2 electrical harnesses *(Figure 406)*

A. Procedure

(1) Remove nut (6), washers (5), clip (4) and bolt (3) securing engine electrical harnesses TB1 and TB2 to engine from the vertical centre-line.



TB1, TB2 electrical harnesses removal
Figure 406

7. Remove inlet cowl services *(Figure 407)*

A. Procedure

(1) Disconnect electrical connector P4 from engine inlet pressure and temperature sensor (5).

(2) Disconnect tube assembly (18) from anti-icing pressure switch (15).

(3) Remove tube assembly (18) from tapping on inlet cowl anti-icing pipe (19). Put blanks on tube assembly (18) and tapping on inlet cowl anti-icing pipe (19).

(4) Remove nut (16), washer (17) and anti-icing pressure switch (15) from bracket on inlet cowl. Put blanks on anti-icing pressure switch (15).

(5) Remove screw (14), washer (13) and clip (12) securing tube assembly (11) to inlet cowl.

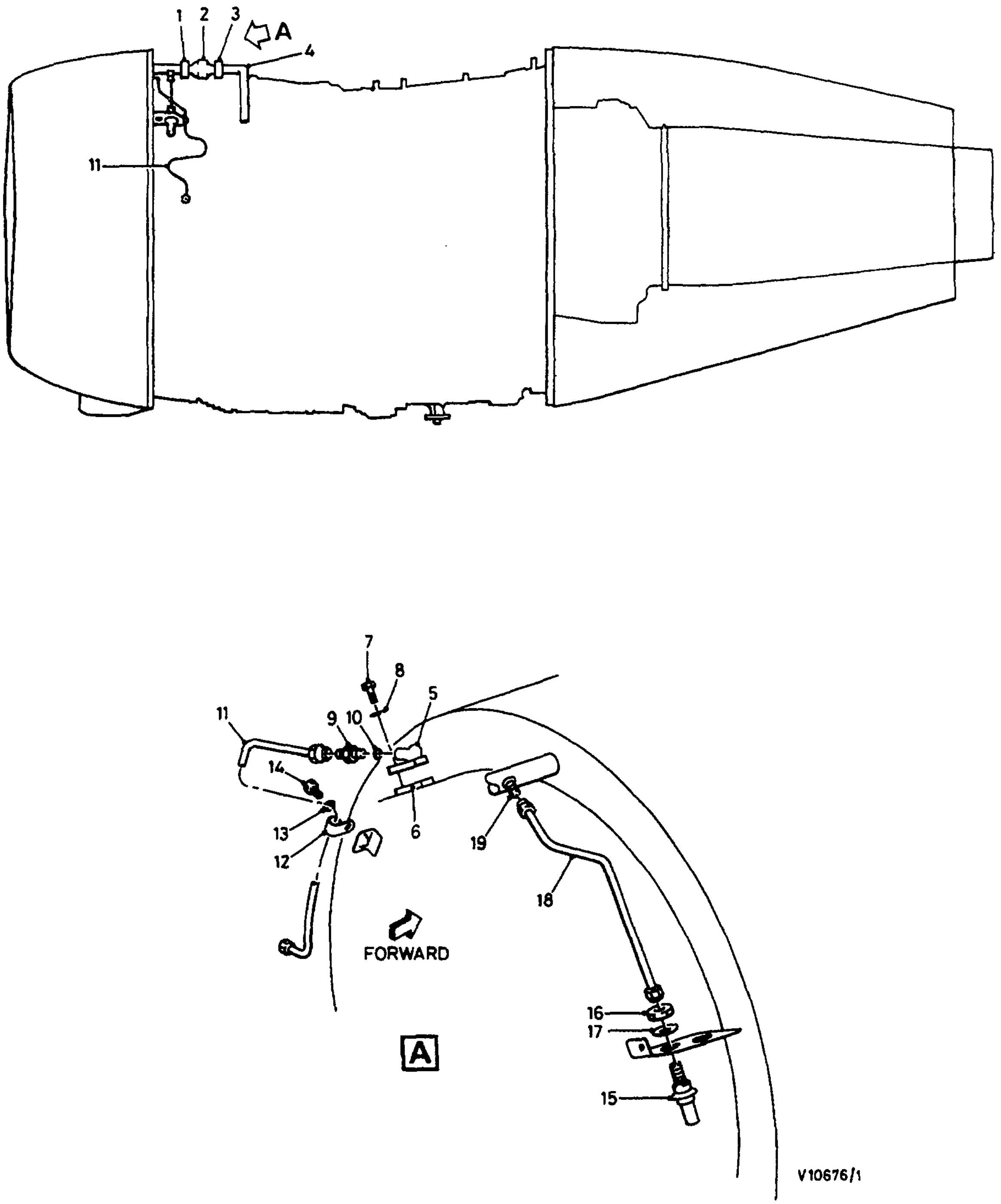
(6) Remove tube assembly (11) from reducer (9) on pressure and temperature sensor (5). Put blanks on tube assembly (11).

(7) Remove reducer (9) from pressure and temperature sensor (5). Remove and discard 'O' ring seal (10) from reducer (9). Put blanks on reducer (9).

(8) Remove bolts (7) and washers (8) securing pressure and temperature sensor (5) to inlet cowl. Remove pressure and temperature sensor (5) from inlet cowl. Put blanks on tapping on inlet cowl and pressure and temperature sensor (5).

(9) Remove V-clamp (3) from engine HP intake anti-icing pipe (4) and inlet side of anti-icing shut off valve (2).

(10) Release V-clamp (1) and remove anti-icing shut-off valve (2) from inlet cowl anti-icing pipe. Put blanks on anti-icing shut-off valve (2) and inlet cowl anti-icing pipe.



Inlet cowl services removal
Figure 407

8. Remove inlet cowl *(Figure 408)*

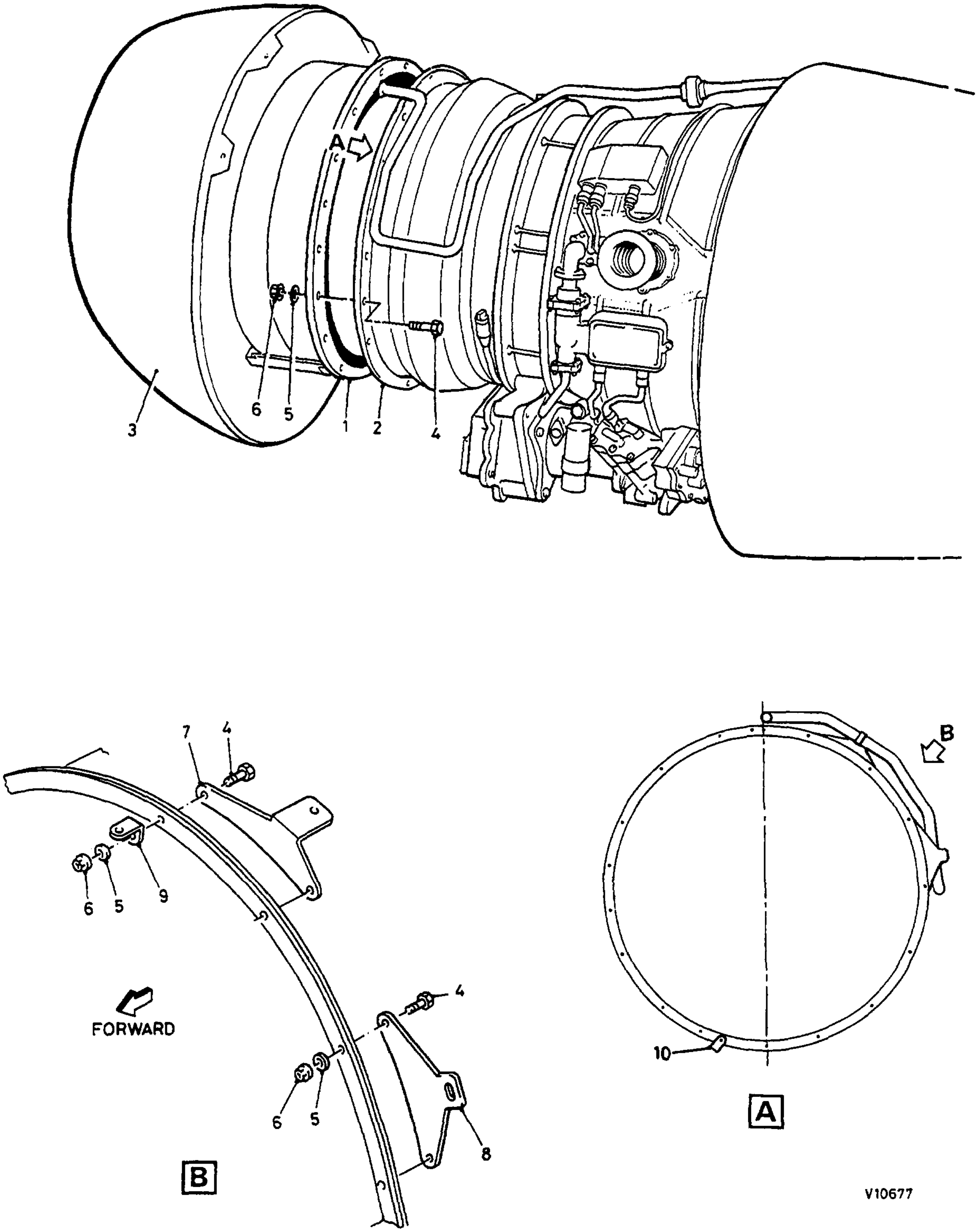
A. Procedure

(1) Support inlet cowl (3).

(2) Remove all nuts (6), washers (5) and bolts (4) from inlet cowl/fan casing attachment flange (1), (2).

(3) Withdraw inlet cowl assembly (3) and lay on a clean and protected surface.

(4) Put blanks on engine fan casing.



Inlet cowl removal
Figure 408

9. Remove aft cowl assembly *(Figure 409)*

A. Procedure

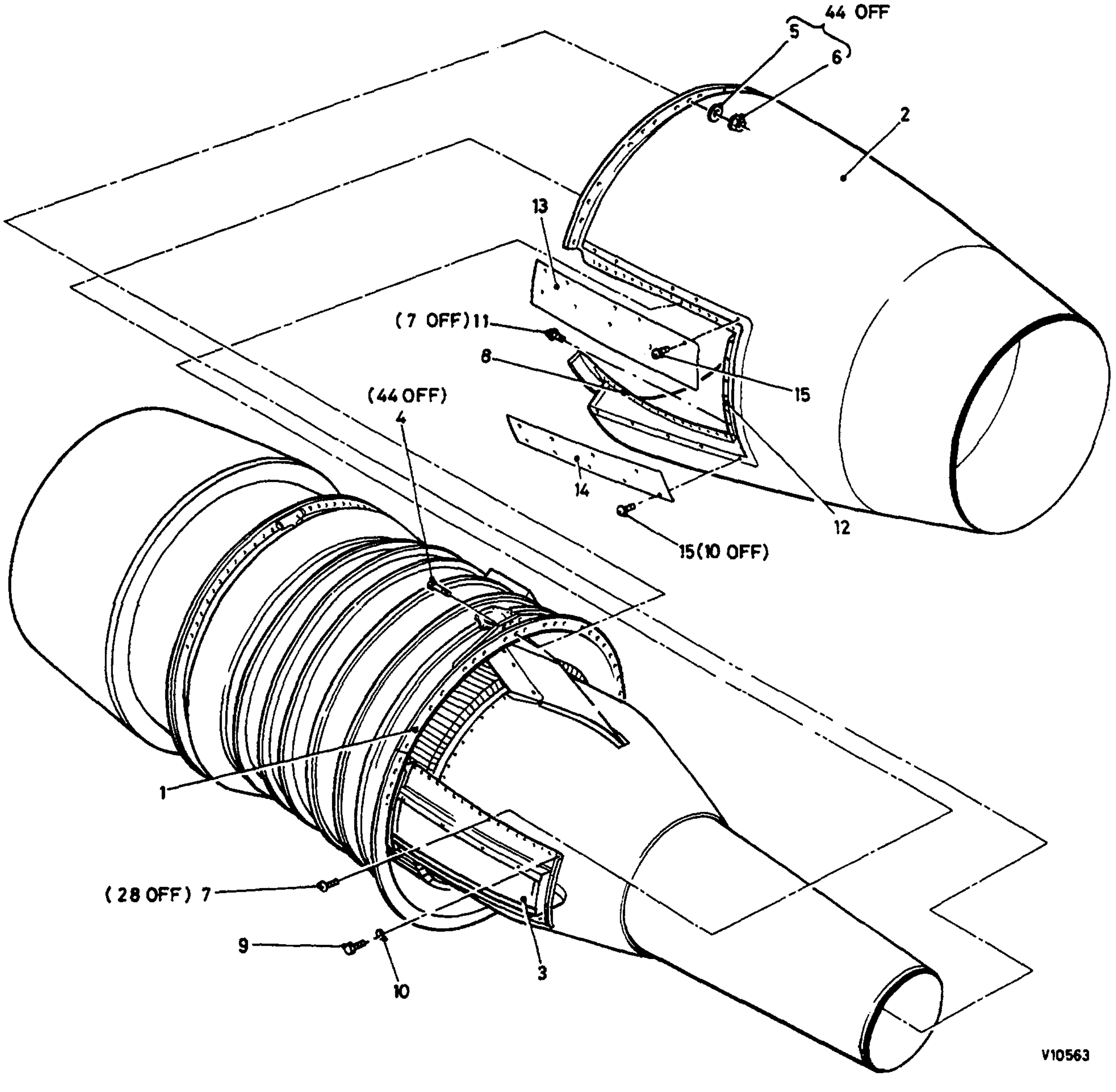
(1) Release quick-release studs (15) securing the aft cowl upper (13) and lower (14) closing panels to aft cowl assembly (2). Remove panels (13), (14).

(2) Release quick-release studs (11) securing island assembly (3) to aft cowl inner skin rear angle (12).

(3) Release quick release studs (7) and remove bolts (9), washers (10), securing island structure (3) to aft cowl inner skin (8).

(4) Support aft cowl assembly (2), remove nuts (6), washers (5) and bolts (4) securing aft cowl assembly (2) to aft cowl/engine fan duct flange (1).

(5) Withdraw aft cowl assembly (2) outwards and rearwards leaving the island structure (3) in position attached to the engine fan duct rear flange (1).



Aft cowl assembly removal

Figure 409

10. Remove engine rear mount fairings *(Figure 410)*

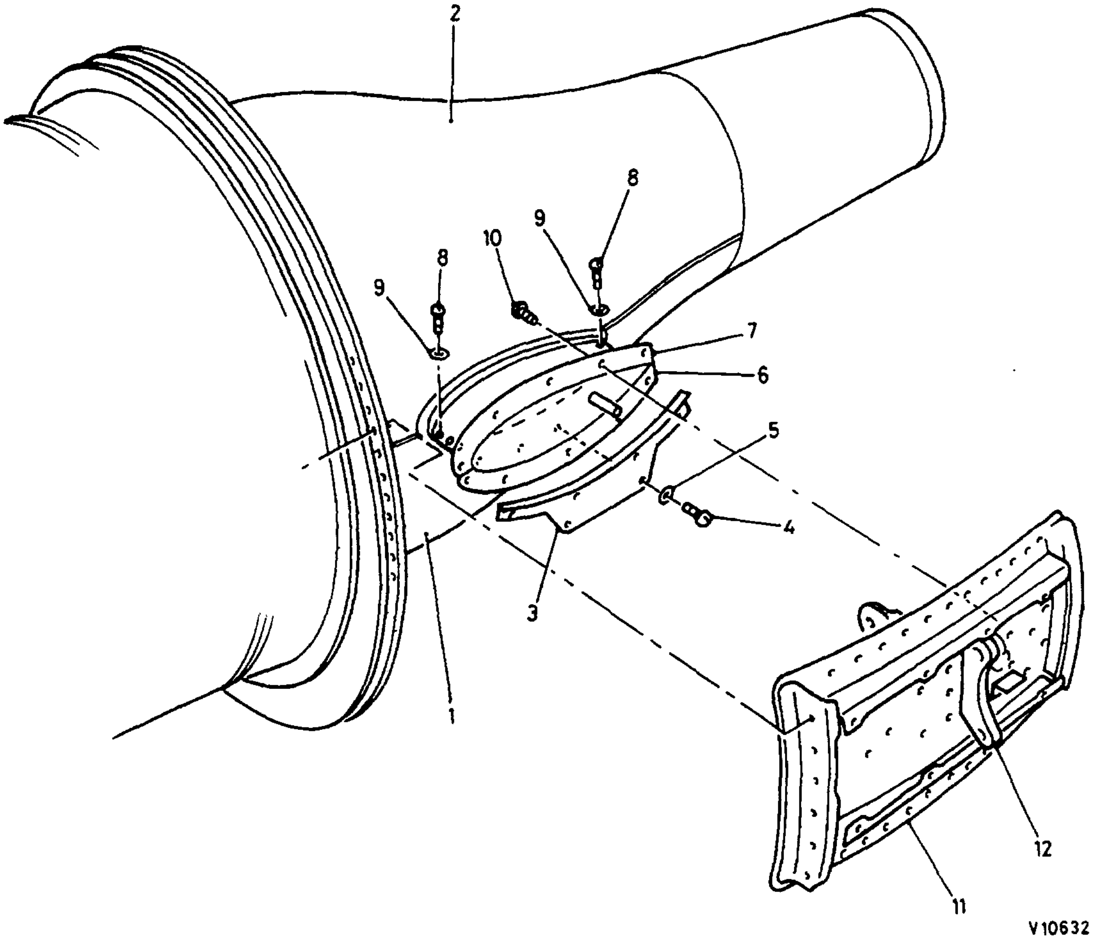
A. Procedure

(1) Release quick-release studs (10) securing upper (7) and lower engine mounting fairings (6) to island structure (11).

(2) Remove screws (8), with washers (9) securing upper (7) and lower engine mounting fairings (6) to fan exhaust duct inner skins (1), (2).

(3) Remove lower engine mounting fairing (6) from fairing support (3), and remove upper engine mounting fairing (7) from fan exhaust duct inner skin (2).

(4) Release quick-release studs (4), with washers (5), securing fairing support (3) to lower and upper engine fan exhaust duct inner skins (1), (2). Remove fairing support (3) from inner skins (1), (2).



Engine rear mount fairings removal
Figure 410

11. Remove fan exhaust duct skin panels and HP bleed duct fairings *(Figure 411)*

A. Procedure

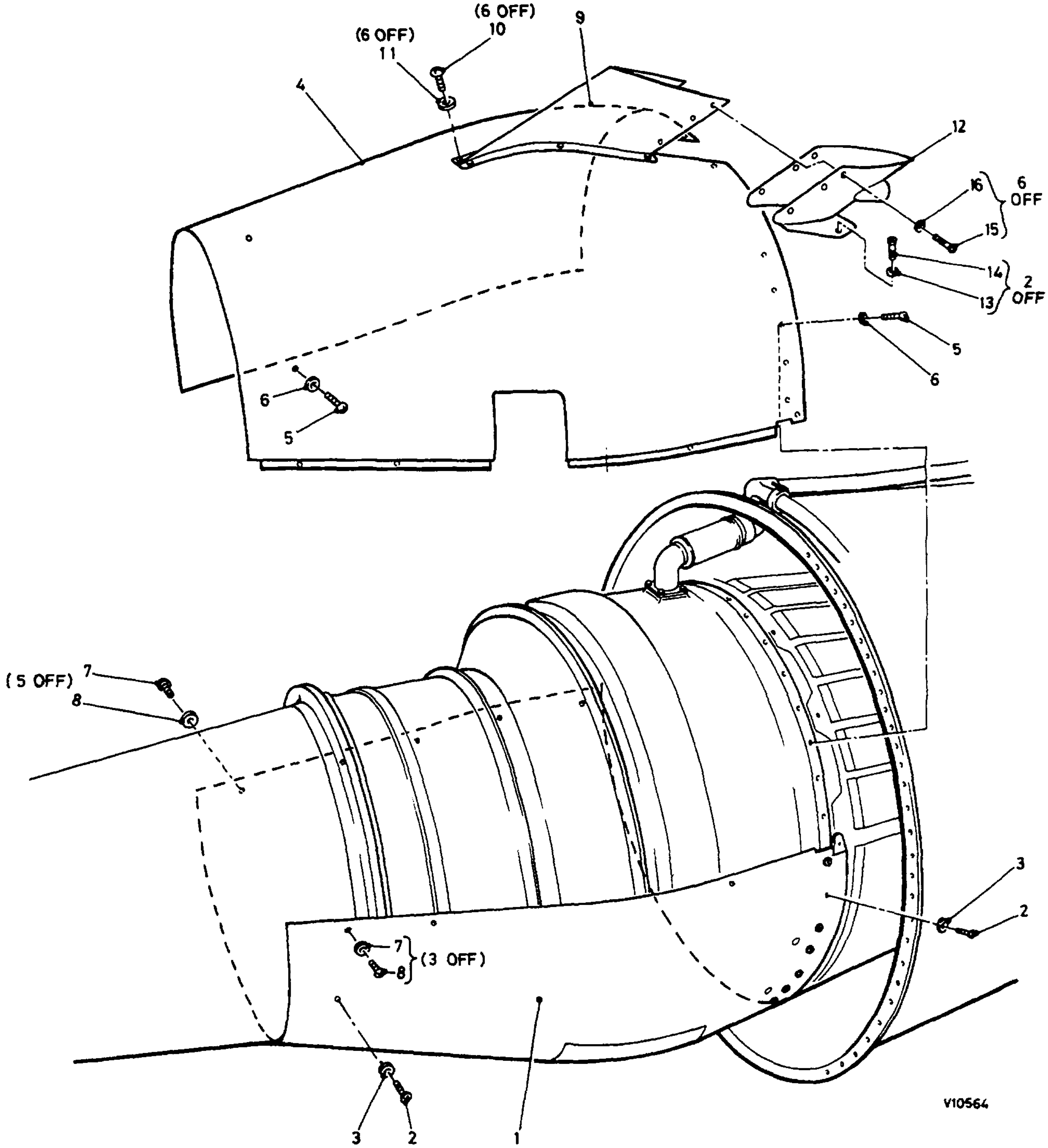
(1) Remove screws (15) and washers (16) securing front HP air bleed pipe fairing (12) and rear HP air bleed pipe fairing (9) together.

(2) Remove screws (14) and washers (13) securing front HP air bleed pipe fairing (12) to upper fan exhaust duct inner skin (4). Remove fairing (12).

(3) Remove screws (10) and washers (11) securing rear HP air bleed pipe fairing (9) to upper fan exhaust duct inner skin (4). Remove fairing (9).

(4) Remove screws (5), with washers (6), securing fan exhaust duct inner skin top panel (4) to engine, and release fasteners (7) along horizontal lap joint. Remove top panel (4).

(5) Support fan exhaust duct inner skin bottom panel (1), remove screws (2) and washers (3). Remove bottom panel (1).



Fan exhaust duct skin panels and HP bleed duct fairings removal
Figure 411

12. Remove engine rear mount and island structure *(Figure 412)*

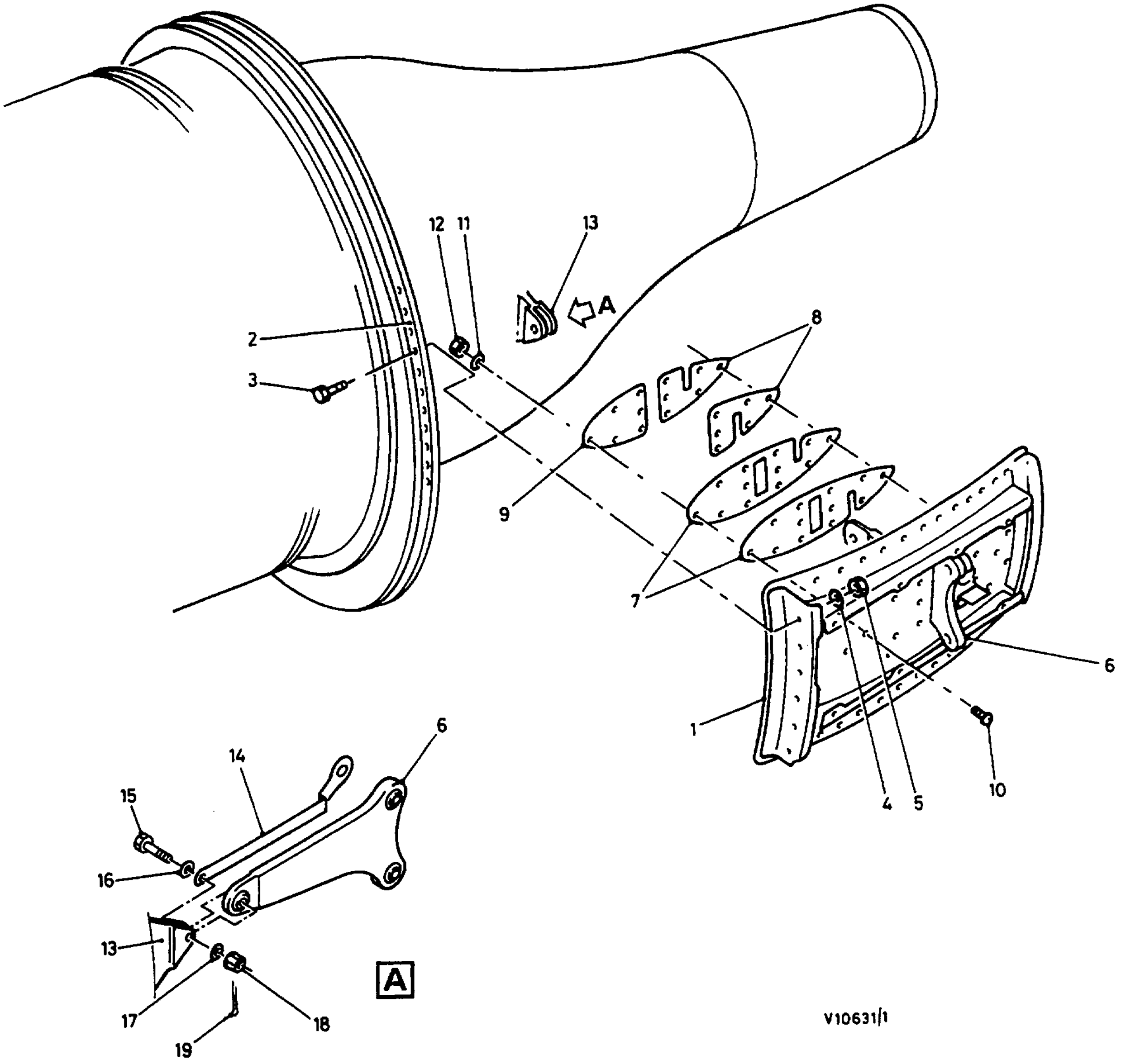
A. Procedure

(1) Remove nuts (12), washers (11) and bolts (10) securing seal assembly in position on island structure (1).

(2) Disassemble seals (7), heat shields (8), (9) and cable gaiter and withdraw electrical harnesses from island structure (1).

(3) Disconnect engine rear mount (6) at engine attachment lug (13) by removing split pin (19), nut (18), washers (17), (16) and bolt (15). Discard split pin (19). Remove engine rear mount (6), with bonding strap (14), from engine through island structure (1).

(4) Remove nuts (5), washers (4) and bolts (3) securing island structure (1) to engine aft cowl attachment flange (2). Remove island structure (1).



Engine rear mount and island structure
Figure 412

13. Remove Zone Two fire detection harness *(Figure 413)*

A. Procedure

(1) Remove cable ties (16), (17), from two positions, securing Zone Two fire detection harness (1) to support strip (3).

(2) Remove nut (15), washer (14), bolt (13) and P-clip (12) securing fire detection harness (1) to engine mounted bracket.

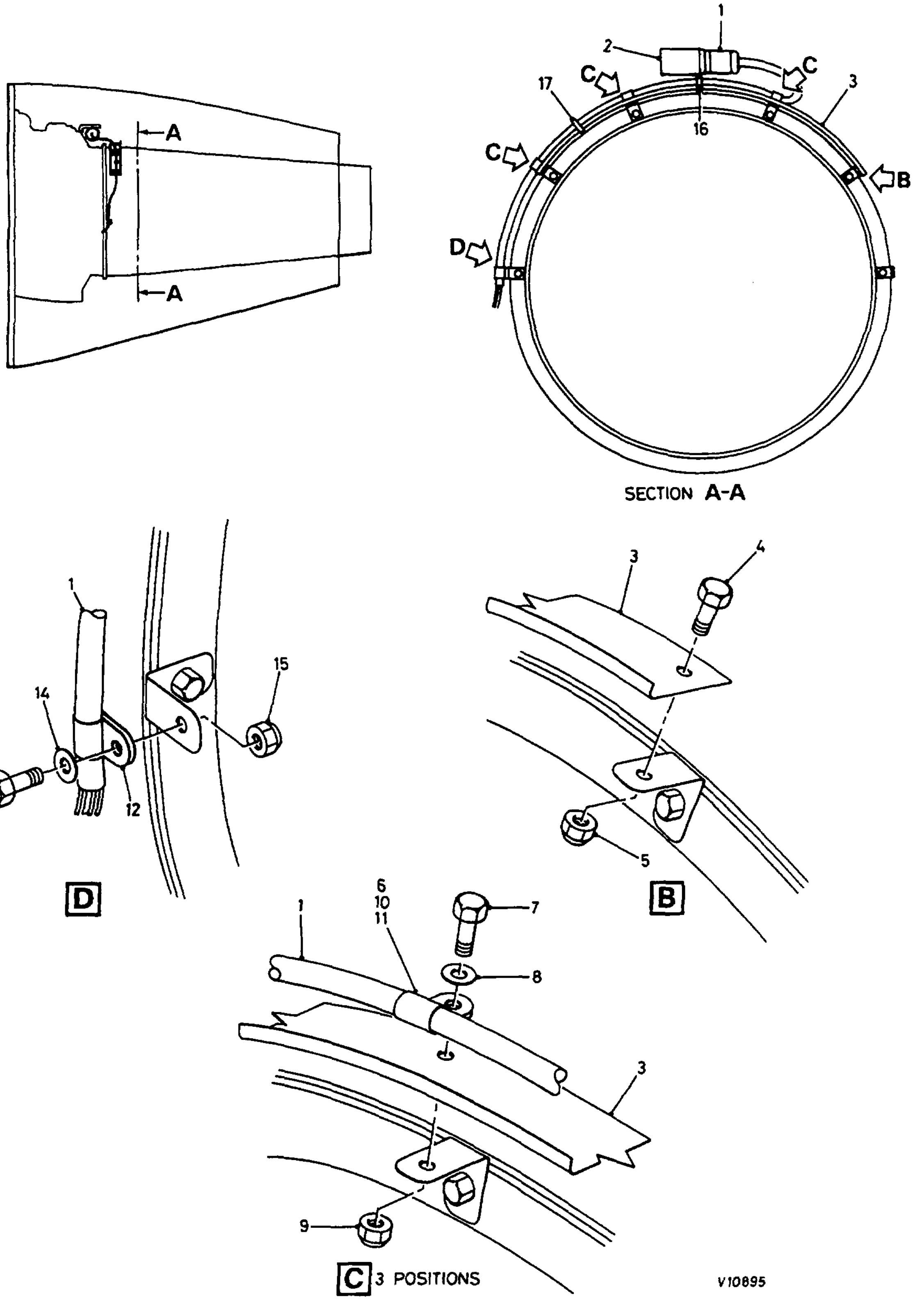
(3) Remove nut (9), washer (8), bolt (7) and P-clip (11) securing fire detection harness (1) and support strip (3) to engine mounted bracket.

(4) Remove nut (9), washer (8), bolt (7) and P-clip (10) securing fire detection harness (1) and support strip (3) to engine mounted bracket.

(5) Remove nut (9), washer (8), bolt (7) and P-clip (6) securing fire detection harness (1) and support strip (3) to engine mounted bracket.

(6) Remove nut (5) and bolt (4) securing support strip (3) to engine mounted bracket. Remove support strip (3) from engine.

(7) Disconnect Zone Two fire detection electrical harness (1) from responder (2). Remove harness (1) from engine.



Zone Two fire detection harness removal
Figure 413

14. Remove ITT indicator, ITT computer and N_1 monopole harnesses *(Figure 414)*

NOTE: The following disassembly procedures take an engine to a neutral standard, this then enables the engine to be fitted to the left hand, or back to the right hand, installation standard.

A. Procedure

(1) Remove nut (4), bolts (5) and P-clips (16) securing ITT computer and indicator harnesses (1), (2) to existing mounting bracket. Refer to *View B.*

(2) Remove nut (4), bolt (5) and P-clip (15) securing ITT computer and indicator harnesses (1), (2) to existing mounting bracket. Refer to *View B.*

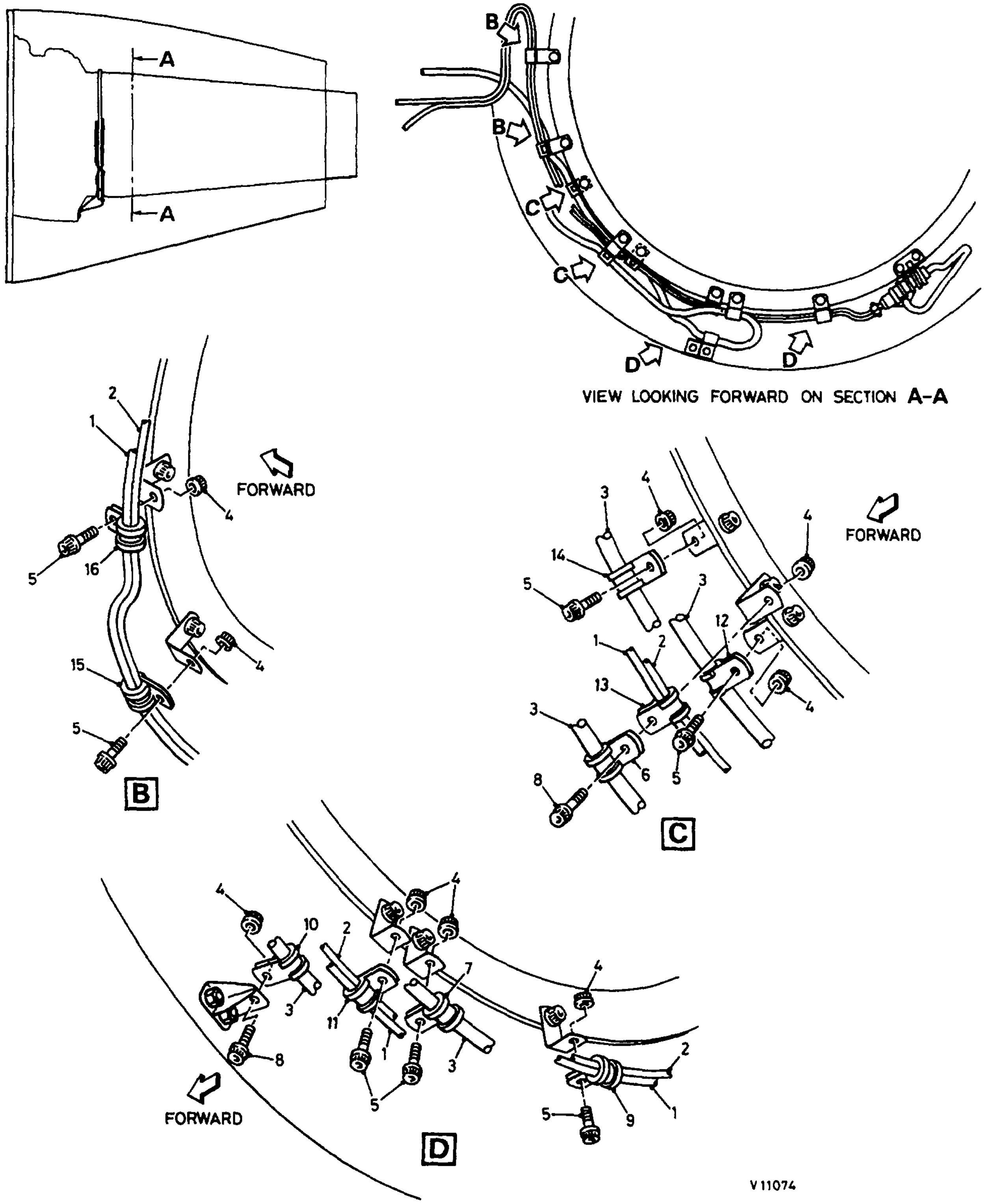
(3) Remove nut (4), bolt (5) and P-clip (14) securing N_1 monopole harnesses (3) to existing mounting bracket. Refer to *View C.*

(4) Remove nut (4), bolt (8) and P-clips (13) securing ITT computer and indicator harnesses (1), (2) to existing mounting bracket. Install bolt (8) and nut (4), to secure P-clip (6) and N_1 monopole harness (3) to existing mounting bracket. Refer to *View C.*

(5) Remove nut (4), bolt (5), and P-clip (12) securing N_1 monopole harness (3) to existing mounting bracket. Refer to *View C.*

(6) Remove nut (4), bolt (5), and P-clip (11) securing ITT computer and indicator harnesses (1), (2) to existing mounting bracket. Refer to *View D.*

(7) Remove nut (4), bolt (8) and P-clip (10) securing N_1 monopole harness (3) to existing mounting bracket. Install bolt (8) and nut (4) to secure existing P-clip to mounting bracket.



ITT indicator, ITT computer and N_1 monopole harnesses removal

Figure 414

15. Remove rudder bias pipe assembly *(Figure 415)*

A. Procedure

(1) Remove nuts (16), distance tubes (15), washers (14) and clips (12), securing rudder bias pipe assembly (7), from brackets (8).

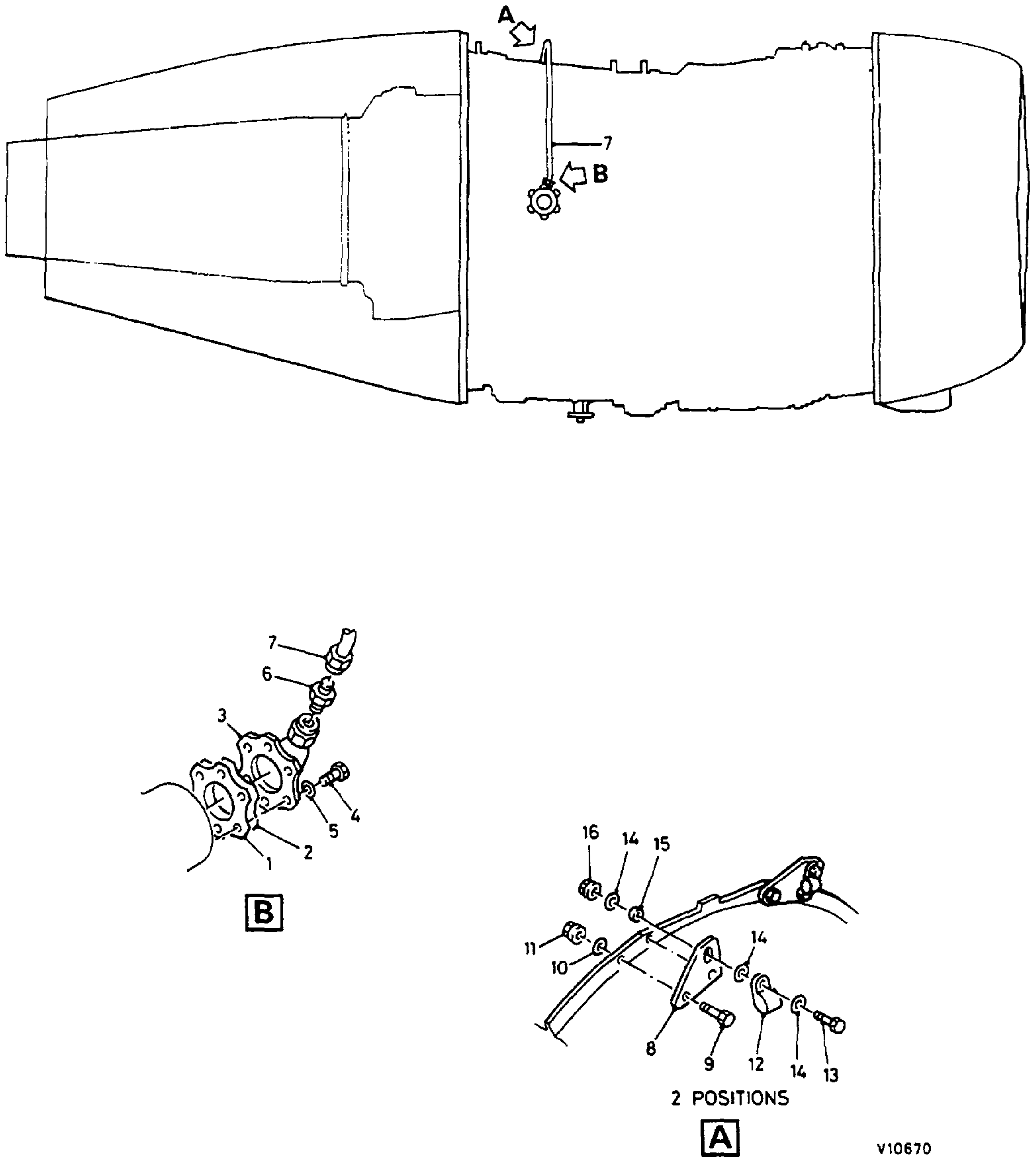
(2) Remove rudder pipe assembly (7) from adaptor (6).

(3) Remove nuts (11), washers (10), bolts (9) and brackets (8) from engine casing flange.

(4) Remove adaptor (6) from tube assembly (3).

(5) Remove bolts (4) and washers (5) securing tube assembly (3) to engine tapping. Remove tube assembly from engine tapping and discard gaskets (1), (2).

(6) Install blanking plate and gasket, coated with sealant (Item 310) (see Chapter 71-00-06) to tapping aperture and secure with bolts. Tighten bolts to a torque of 30-35 lbf.in. and safety with lockwire.



Rudder bias pipe assembly removal
Figure 415

16. Remove HP intake anti-icing pipe *(Figure 416)*

A. Procedure

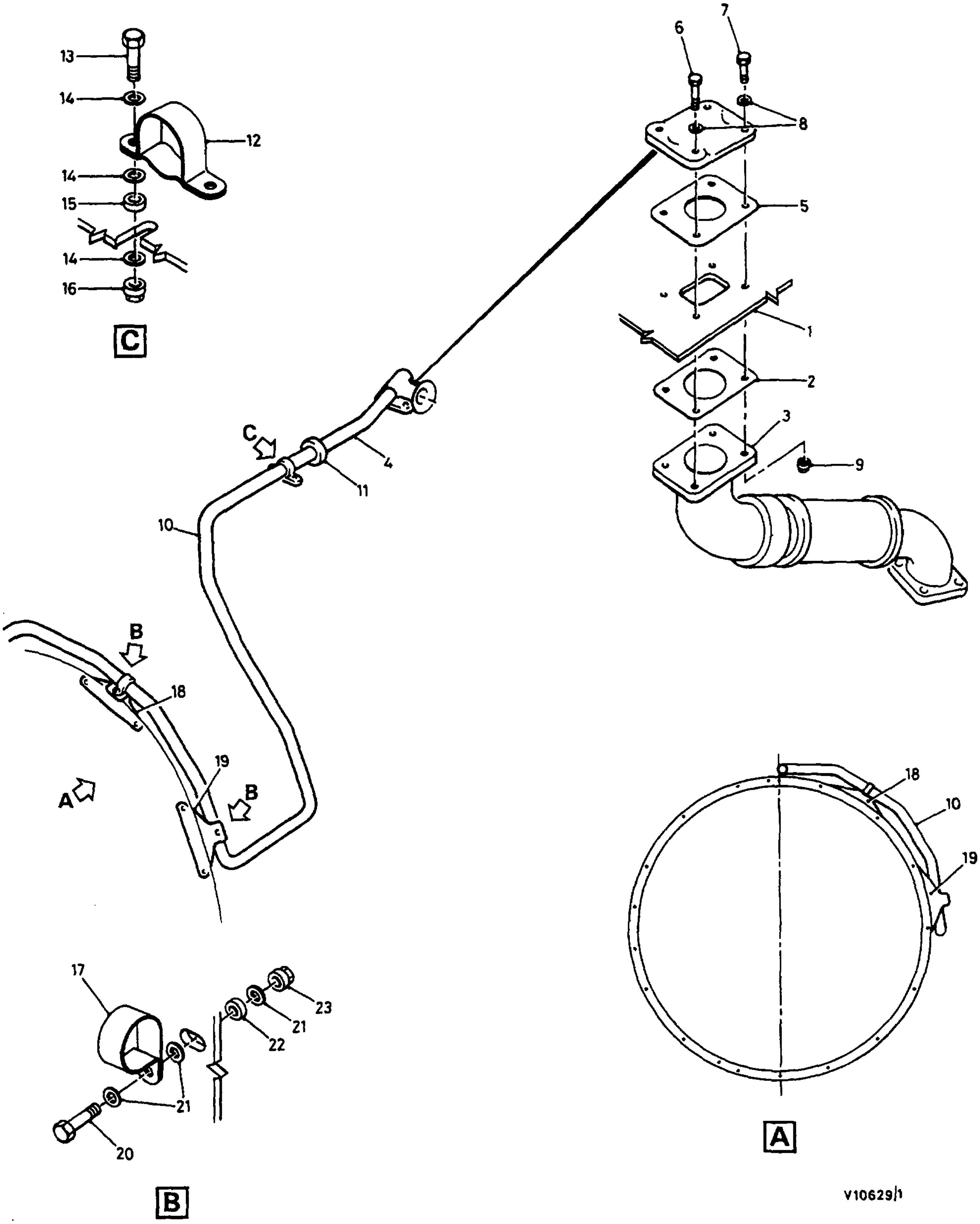
(1) Remove nuts (23), bolts (20), washers (21), distance tubes (22) and brackets (18), (19), then remove clips (17) from HP intake anti-icing pipe (10).

(2) Remove nuts (16), distance tubes (15), washers (14) and bolts (13), then remove clamp (12) securing HP intake anti-icing pipe (10) to engine casing.

(3) Release clamp (11), then remove HP intake anti-icing pipe (10) from tube assembly (4).

(4) Release coupling nut on HP Line assembly (3) and remove gasket (2) from between HP line assembly (3) and engine casing (1). Discard gasket (2) and install a blank to HP line assembly (3).

(5) Remove nuts (9), washers (8) and bolts (6), (7) securing tube assembly (4) to engine casing (1), then remove tube assembly (4) with gasket (5). Discard gasket (5) and put blanks on tube assembly (4).



HP intake anti-icing pipe removal
Figure 416

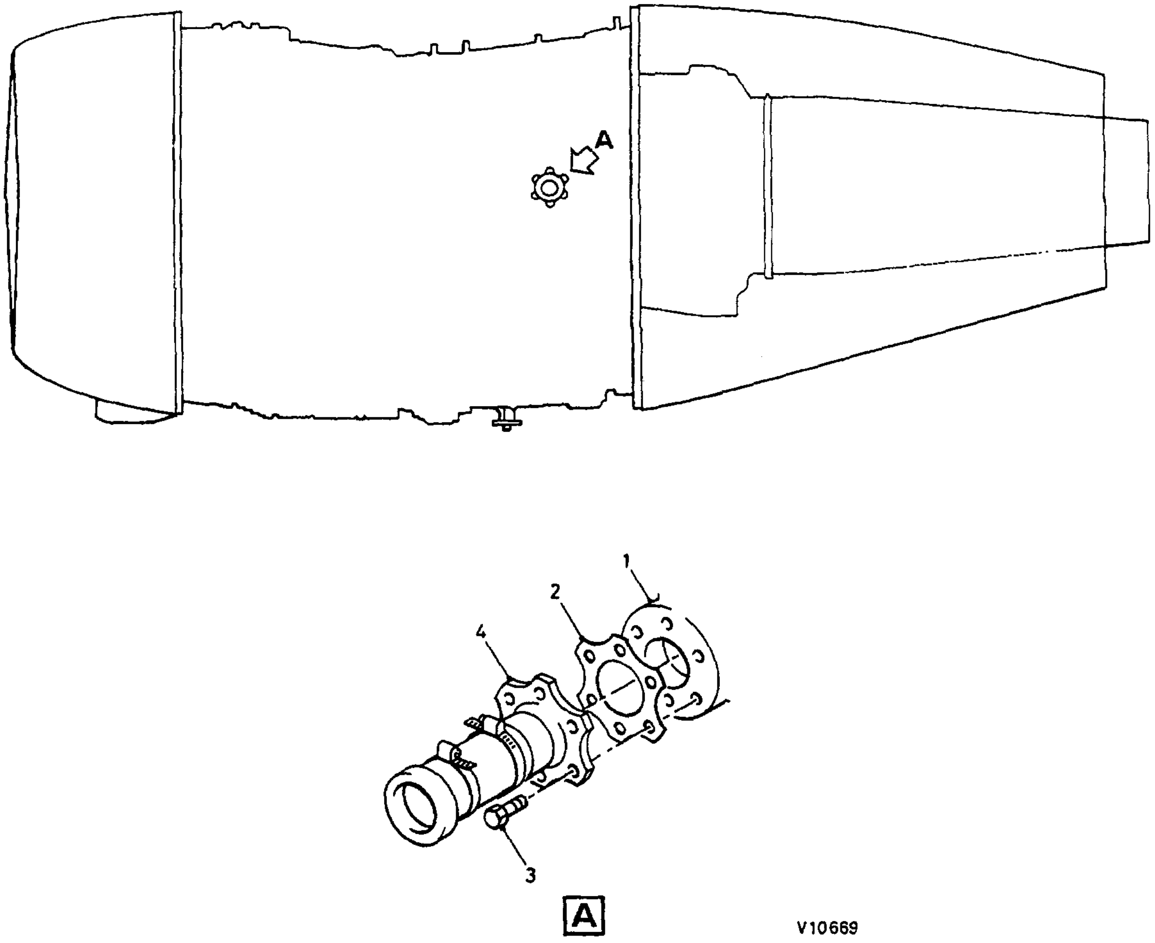
17. Remove LP air supply connector *(Figure 417)*

A. Procedure

(1) Remove six attachment bolts (3) securing low pressure connector assembly (4) to engine LP air tapping (1), then remove connector assembly (4) with gasket (2) from engine. Discard gasket.

(2) Install blanking plate, with new gasket coated with sealant (Item 310) (see Chapter 71-00-06) to LP air supply tapping on left side of engine with six attachment bolts.

(3) Tighten bolts to a torque of 30-35 lbf.in. and safety with lockwire.



LP air supply connector removal
Figure 417